JUN 23 1943

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BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

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BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.

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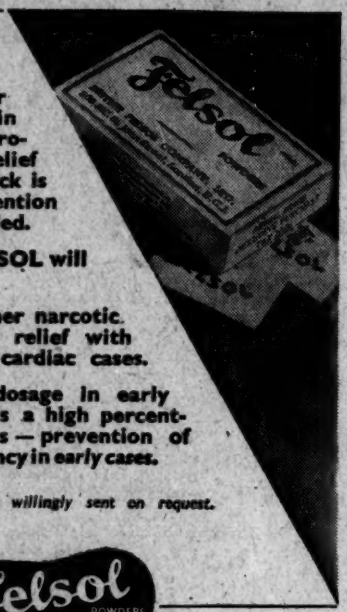

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 5 1943

THE OPHTHALMOSCOPE IN CLINICAL MEDICINE

THE INTERIOR OF THE LIVING EYE CONSIDERED AS A BIOCHEMICAL LABORATORY*

BY

A. MAITLAND RAMSAY, M.D., LL.D., F.R.S.Ed.

Until the ophthalmoscope was discovered the interior of the living eye was *terra incognita* to the physician. The ocular structures deeper than those visible in the anterior chamber were for all clinical purposes a sealed book, and our knowledge of the inner eye and its diseases had to be acquired from the observation and the interpretation of symptoms. That method of procedure is beset with many pitfalls, for it rests almost entirely upon the patient's own account of the disease, and very few of them can give a clear and connected description of the character, the site, and the duration of the symptoms. It is only when the doctor is able to analyse all the patient has told him that he can, by a few direct questions, separate the wheat from the chaff. When he does succeed in so doing valuable information is always obtainable; but the clinical value of such an examination depends almost entirely upon the surgeon's special skill and his personal experience. Nevertheless much useful information has been acquired and accumulated by the careful study of the symptomatology of disease, especially when a knowledge of medicine went hand in hand with literary culture. A striking example of what can be achieved in that way is seen in William Mackenzie's *Practical Treatise on Diseases of the Eye*, in which accurate medical observation is accompanied by such vivid clinical description that the reader almost sees the patient rising from the printed page.

The Clinician and the Laboratory

Clinical observations differ from laboratory investigations in medical practice, inasmuch as the latter are quite impersonal, whereas the former always regard the patient as an individual entity. That aspect of the position has tended to shrink into the background in recent years owing to the steadily increasing importance that is now attached to intensive laboratory research. In no circumstances, however, can the clinician be replaced by the laboratory worker. In a large number of cases both of them are required if the patient is to have the benefit of the highest medical skill; but when consultation is necessary the clinician must never allow himself to be supplanted by the laboratory worker. In the initial diagnosis of disease the clinician must always take first place. He works beside the patient, and ought to exhaust every means of examination at his disposal to reach a diagnosis by himself, and when he fails he ought always to know the kind of assistance he is requiring before he seeks help from his colleague in the laboratory. The best results are most likely to be got when both workers meet and discuss together the problem they are anxious to solve.

When clinical symptomatology is uncontrolled by objective examination, or by any form of experiment, patients who are not in the same category are apt to be grouped together. For example, before the introduction of the ophthalmoscope patients suffering from failing sight or loss of sight were all included under the general heading "amblyopia and amaurosis." Many attempts were made to reclassify those said to be suffering from amblyopia; but as vision becomes more impaired accurate diagnosis is wellnigh impossible, and when the stage of blindness or amaurosis is reached some with grim humour defined that condition as a state of matters in which the patient sees nothing and the surgeon sees nothing.

The laboratory worker always aims at scientific precision, and concerns himself for the most part with analysis and measurement. He puts his chief reliance upon chemical and microscopical tests, and upon experiments whose results can be tabulated in figures. The clinician requires something more. His education at the bedside has qualified him for dealing with human suffering; consequently he is able to make a character study of the individual patient, and knows how to help him with words of hope and encouragement. Our forefathers paid great attention to the study of human beings both in health and in disease, and they encouraged medical students to cultivate their power of observation and to train their sense of touch; but this personal training of eyes and hands is passing into the background. In these days we must be careful not to neglect the clinical tradition of the personal art and skill of mind and hand, without which a family doctor will find the most up-to-date scientific training in the laboratory insufficient in many of the situations he is called upon to cope with in the daily round of general practice. Modern medicine has become so highly mechanized that a medical practitioner is being tempted to rely more and more on the findings of an instrument and on a report from a laboratory. We are forgetful that the human brain, when it is highly trained, is the finest of all instruments; and when we employ some mechanical apparatus to do its work, and save ourselves the trouble of thinking, we must be careful that we do not sidetrack our own intelligence.

The Laboratory of the Eye

Among the instruments on which a medical student is taught to rely in his clinical work, the ophthalmoscope is in a category by itself. The ophthalmoscope enables us to see the nervous and vascular structures of the fundus oculi and to study physiology and pathology during life. For our immediate purpose we may liken the interior of the living eye to a fully equipped biochemical laboratory, in which Nature herself performs all the experiments. With the help of the ophthalmoscope we can look into this laboratory through the window of the pupil and watch Nature at work; and as Nature's ways throughout the body are everywhere consistent, we are justified in concluding that what we can see in the eye is an index of what is taking place hidden from view in other regions of the body. The fundus oculi therefore affords a unique opportunity for the clinical study of vital processes, and is a convenient place for the clinician to meet the pathologist. In the laboratory of the eye the patient can never be forgotten. The pathologist working in his own department examines and

* An address, illustrated by lantern slides, given to the Bute Medical Society, University of St. Andrews.

furnishes a report on the specimens that have been sent to him, but he does not need to have seen the patient or to be interested in the human aspects of the case; the clinician, however, always has to deal with a patient behind the disease.

Notwithstanding his skill and the perfection of his laboratory methods a chemist's experiments are not invariably successful, and in the laboratory of the human body Nature's experiments are also followed by success and failure. When Nature's experiments are successful we are quite unconscious of the functioning of our bodily organs. Everything seems to go with the precision of clockwork. We have a supreme sense of well-being. We enjoy good health, and feel quite fit for our daily duties. When, on the other hand, Nature's experiments are unsuccessful we at once become conscious of abnormal sensations, which we recognize as symptoms of disease. In some instances an ophthalmoscopic examination enables us to detect disturbance of metabolism in its earliest stages. The physician who neglects the routine use of the ophthalmoscope in general practice misses a great deal. The original models of the instrument were difficult to manipulate, but the modern electric ophthalmoscope enables us to examine the eye as easily as we can take the temperature, auscultate the chest, or apply chemical tests to the urine. Before the medical practitioner can understand what he is looking at, however, he must be able to correlate the ophthalmoscopic appearances with the microscopic anatomy of the fundus oculi. Each of the three tunics of the eyeball contributes to produce the ophthalmoscopic picture of the eye ground. The sclerotic may be regarded as the white canvas on which the picture is painted. The blood in the capillaries of the choroid and retina is responsible for the red colour, while the transparency of the retina gives it a peculiar lustre and characteristic translucency.

The Fundus Oculi

In every organ of the body there is a wonderful adaptation of structure to function. In the eye perfect transparency is the primary requisite, and that has been secured for all the structures especially concerned with vision by an almost complete impermeability of the intra-ocular capillaries to the passage of colloidal substances. In a state of health water, gases, and crystalloids readily escape from the retinal capillaries, but colloids for the most part are retained in the blood. As a result of this retention of colloids a peculiar translucency is the outstanding characteristic of the normal fundus oculi, and at the onset of disease that translucency is the first thing to be lost. The capillaries are very sensitive to the quality of the blood. The least taint of toxaemia causes them to dilate rapidly, and, by damaging the endothelium of their walls, allows colloids to escape. Congestion of its capillaries, and its infiltration with colloids, quickly impair the normal transparency of the retina, which can be recognized clinically by lack of translucency in the ophthalmoscopic appearance of the fundus oculi. Instead of its normal characteristic brilliance the fundus looks like glass which has lost its lustre after having been breathed upon. At the outset the departure from the normal is very slight; but clinically it is one of those variants situated on the borderline separating the physiological from the pathological.

The ophthalmic surgeon occasionally sees those cases among patients suffering from eye strain sent to him by colleagues. All of them suffer from headache due to an error of refraction, and the great majority are at once relieved by the use of suitable spectacles; but a few get no benefit from optical treatment alone. These patients form a group by themselves, and all of them present the pathognomonic sign of lack of translucency in the ophthalmoscopic picture of the fundus oculi. There is no deterioration in the patients' usual acuity of vision, but some complain of attacks of misty sight accompanied by black spots floating in front of the eyes or by sparks and flickering lights dancing in the field of vision. These subjective symptoms are supposed to be due to increase of blood pressure in the central artery of the retina, and although they may be premonitory they are quite distinct from those signs accompanying an ordinary sick headache or an attack of migraine. An important concomitant sign is that although the quantity of urine passed in 24 hours is somewhat less than usual, the specific gravity is not increased in the same ratio, and when a specimen is kept overnight in a urine-glass there is almost invariably a deposit containing numerous minute crystals of calcium oxalate; but there is no interference with the excretion of urea. It is probable that, in the case of those patients, waste products which ought to have been excreted in the urine have been retained in the blood, and have caused a mild form of toxaemia by dilating the capillaries both of the retina and of the glomeruli of the kidney. That hypothesis gave the clue to the successful treatment of those patients. More than 50 years ago a similar condition in general medicine was described by Sir Andrew Clark in his papers on renal inadequacy, and by Charles Murchison in his book on functional derangement of the liver. These authors have demonstrated, from a clinical standpoint, that in both the kidney and the liver the disorder is functional, and that healthy action can be restored by the use of eliminant remedies. When, in addition to the use of the glasses required to correct the error of refraction from which the patients we are considering suffered, a course of eliminant treatment is prescribed relief from the symptoms is speedy and permanent. The normal ratio between urine volume and the specific gravity is restored, the oxalùria disappears, the retina recovers its normal transparency, and the headache is cured.

The Fundus and the General Circulation

The circulation can be studied in the fundus oculi as an integrated whole, and as the circulation of the blood in the eye is governed by the same rules as those which regulate its distribution to every organ of the body it gives a reliable clue to the state of the general circulation. The intra-ocular circulation is peculiar inasmuch as it has to be carried on under the pressure of the intra-ocular fluids, and the smooth steady flow of blood throughout the retina depends upon an accurate balance being maintained between blood pressure on the one hand and the pressure of the intra-ocular fluids on the other. By the usual method of ophthalmoscopic examination pulsation is seen in the veins as they pass over the optic disk, but no pulsation is visible in the arteries unless there has been a breakdown in the physiological adjustment of those two pressures. For example, if there is a sudden fall in the diastolic systemic pressure, as occurs in aortic regurgitation, or an increase in intra-ocular pressure as in glaucoma, pulsation in the main branches of the retinal artery can always be seen with the ophthalmoscope. Venous pulsation therefore is physiological, but arterial pulsation is always pathological. The walls of the vessels in a state of health are so transparent that arteries are distinguished from veins by the colour of the blood. When used by the direct method the ophthalmoscope acts as a low-power microscope, and gives a magnification of 15 diameters. We are thus able to see arterioles during life which we cannot see with the unaided eye in a post-mortem specimen.

Ocular Manifestations of Disorders

In what follows I shall limit myself to a consideration of the ocular manifestations of the injurious effects of disordered metabolism upon the cardiovascular–renal system. In the act of living there is a constant manufacture of toxic products, which, if health is to remain unimpaired, must either be destroyed at once or removed from the body with the least possible delay. Our bodily life therefore seems to be very much a matter of chemistry. It is only at the level of the capillaries that exchanges in both directions take place, for the purposes of metabolism, between the blood and the tissues. By that means the physiological processes of assimilation and elimination are conducted and the nutrition of the body is adequately maintained. The capillaries are very sensitive to the presence of impurities in the blood, and high blood pressure is the usual accompaniment of toxaemia due to the absorption of metabolic waste products; but so long as the walls of the blood vessels remain healthy there is little danger of hypertension causing rupture and haemorrhage. That is a fact which should not be forgotten, because so many are said to be suffering from high blood pressure nowadays that the subject is a common topic of conversation far beyond the bounds of the medical profession. As a rule the general trend of all such conversations is unnecessarily gloomy. It is well known that in some families there is a hereditary predisposition to a state of high blood pressure in late middle life: but it is not always

remembered that although increase of blood pressure is frequently an accompaniment of advancing years it is not in itself a disease. Very considerable variations are quite compatible with ordinary life and health, and probably also with normal expectation of life. Ellis is of the opinion that in more than 90% of the patients the hypertension is benign. Allbutt describes this condition as hyperpiesia, which often exists unaccompanied by symptoms, and is sometimes discovered in the course of a routine medical examination for life insurance. Those who suffer from a benign form of increased blood pressure ought to be discouraged, therefore, from taking too much interest in their high blood pressure.

In practical medicine undue attention ought never to be directed to any single sign or symptom. It is the association of symptoms that is of value in prognosis, and as a rule the ophthalmoscope and the sphygmomanometer ought to be used together. The clinical value of the actual number registered by the latter instrument can only be properly assessed after careful digital examination of the pulse, testing the urine, and thorough interrogation of the cardiovascular system as a whole. Unless there is some sign of cardiac weakness or of cerebral disturbance the restrictions placed upon the patient's general mode of life have as a rule little, if any, influence on the hypertension; but by interfering with the enjoyment of life and curtailing usefulness they create an anxiety neurosis which is far more harmful than the increased blood pressure. It is even worse still when on the supposition that the patient is suffering from dangerous disease he is sent to a spa, where strenuous measures are taken to lower blood pressure. Such treatment may be followed by disastrous results. A sudden fall in systolic pressure is apt to be accompanied by a relative increase in the diastolic, with engorgement of blood in the capillaries. One of the first signs of the upset in the physiological ratio of the systolic–diastolic pressures is the occurrence of haemorrhage from the capillaries of the retina. When that happens the prognosis is very serious, because it is often the prelude to a complete breakdown in general health. A disturbance in the physiological ratio between the systolic and the diastolic pressures is of much worse prognosis than a far higher hypertension in which the normal ratio is maintained and both pressures run parallel. When the hypertension is malignant the prognosis is grave. In these circumstances a form of Bright's disease is almost certainly present, the downward course of which is very rapid. The condition is invariably fatal, and death with uraemic symptoms usually occurs within a year. According to Ellis, in his Croonian lectures for 1941, the pathognomonic sign of malignant hypertension is the occurrence of papilloedema in both eyes, and in some cases the ophthalmoscope also reveals retinitis and haemorrhages.

When toxaemia and high blood pressure are of long duration the ophthalmoscopic picture of the fundus oculi becomes so lustreless that it resembles red velvet, and when the toxin is of special virulence loss of transparency and oedema of the retina become so very pronounced that capillary haemorrhages are usually seen scattered irregularly all over the eye ground. For example, the toxin due to pregnancy excites a very virulent reaction, and attacks eyes and kidneys simultaneously. Acute inflammation of both the retina and the kidneys is present from the outset, and the pathological changes seen in the eye with the ophthalmoscope are an index of what is taking place in the kidney. The inflammation of the retina appears suddenly, runs a violent course, and is characterized by such intense oedema that detachment may occur. Multiple capillary haemorrhages are always present. Both eyes are affected, and sight is impaired, and it may be lost very early in the course of the disease. In patients who have had no ante-natal supervision loss of sight may be the first warning of the approach of danger. The symptoms are often so overwhelming that the case may well seem hopeless; but the experienced physician knows that complete recovery is to be expected after the child is born. No better illustration could be given of the clinical aphorism that when a disease is due to toxaemia a favourable prognosis can always be given if the toxic agent can be wholly eliminated before organic disease of the blood vessels takes place. Unless that occurs, and the toxic agent is eliminated, recovery will be far from complete, and hypertension and albuminuria will persist. In these circumstances blood pressure is likely to remain high, and in course of time arteriosclerotic changes will appear in the retinal arteries and renal function will steadily fail.

Early Signs of Pathological High Blood Pressure

One of the earliest signs of pathological high blood pressure is constriction in the calibre of some of the branches of the retinal artery, and the degree of constriction is a reliable guide to the height of the systemic arterial hypertension. The constricted vessel usually takes a straighter course than is the case with a normal branch of the retinal artery, and when spasmodic constriction is accompanied by straightening of the course of the vessel it is as a rule evidence of organic disease. Loss of transparency of the wall of the retinal artery is another of the early results of persistent pathological hyperpiesia; consequently when spasm occurs in a branch of the retinal artery the outline of the vessel wall is clearly visible, and when spasm is complete the function of the retina supplied by the affected vessel is lost, and will not be restored until the spasm is relieved and the circulation of the blood is re-established. An analogous state of matters can occur in the circulation of the lower limbs—intermittent claudication: severe cramping pain in the muscles of the calf follows exertion, and compels the patient to rest until the arterial spasm passes off. Whenever that takes place the pain is relieved and the patient is able to walk. In both the eye and the leg an underlying constitutional state has existed long enough to produce vascular changes sufficiently serious to cause temporary obstruction of the circulation. When these vascular symptoms are persistent they are usually premonitory of the onset of arteriosclerosis, which is always pathological. Old age of itself will not cause it.

Arteriosclerosis

The earliest signs of arteriosclerosis are often seen in the fundus oculi; therefore in many instances we are able to study them in considerable detail during the patient's lifetime. When sclerosis occurs in the retinal vessels it is a fairly sure sign that it is also present in other organs of the body. Arteriosclerosis, however, is a most capricious disease. One organ may be affected dangerously while others escape.

Arteriosclerosis of the retinal blood vessels is similar to the arterio-capillary fibrosis of Gull and Sutton, and the ophthalmoscopic appearances have been admirably described by Marcus Gunn. The arteries are irregularly contracted, abnormally tortuous, and even the smallest exhibit a brightness of the central light streak which is very characteristic. The artery loses its transparency and becomes hard and rigid; consequently when it crosses a vein it not only conceals the latter from view, but also mechanically exerts so much pressure upon its walls that the flow of blood is hindered, and any sudden rise in blood pressure is apt to precipitate rupture and haemorrhage. In these circumstances the use of the ophthalmoscope is our best guide to the state of the cerebral blood vessels. There is a close relationship clinically as well as anatomically between the retinal and the cerebral blood vessels. Both of them arise from the internal carotid artery. When, therefore, arteriosclerosis develops both sets of vessels are likely to be affected simultaneously, but not necessarily to the same degree. Serious cerebral haemorrhage is more frequent than severe retinal haemorrhage. The vessels in the brain which rupture most frequently are of larger size than any in the retina. In the great majority of cases the true essence of retinal haemorrhage is capillary dysfunction rather than increased blood pressure acting upon a sclerosed artery. When, however, either retinal haemorrhage or cerebral haemorrhage occurs during sleep the patient has probably been dreaming, and the excitement of the dream has caused a rise in the general blood pressure. In these circumstances the haemorrhage is probably due to the rupture of a sclerosed artery either in the eye or in the brain, or in both simultaneously.

The Warning of Retinal Haemorrhage

Haemorrhage from the blood vessels of the retina is always evidence of disease and ought to be taken as a warning. Its causation should be investigated as thoroughly as would be the case after haemoptysis or haematemesis, but it is a mistake to take too gloomy a view of its significance. As an isolated sign it is not likely to increase the gravity of the prognosis

regarding the patient's life, but if the bleeding is extensive the delicate structure of the retina may be injured so seriously that sight is gravely endangered.

Danger to sight depends upon the size and the site of the haemorrhage. In the great majority of medical cases the capillaries are probably the starting-point of retinal haemorrhage; but, when arteriosclerosis is advanced, rupture of an arteriole will determine a copious and destructive bleeding. When blood escapes into the inner layers—i.e., the conducting fibres—of the retina the clots are broken up by the nerve fibres. As a rule they are of bright red colour, small and flame-shaped. They generally disappear by absorption in about three weeks' time, but, unless the underlying toxaemia is eliminated, bleeding of this nature, once it begins, is prone to continue, and fresh haemorrhages take the place of those which have become absorbed. In this situation haemorrhages give rise to so few subjective symptoms that the patient may be unaware that anything is seriously wrong until his eye has been examined with the ophthalmoscope. When, on the other hand, the outer bacillary layer—i.e., the functioning unit—is implicated sight is seriously threatened from the outset by damage to the rods and cones, and the probability is that vision will be permanently impaired, if it be not altogether lost. These haemorrhages are deep-seated, and do not disappear quickly. They are dark red, and more or less circular. When the macula itself is involved central vision is obliterated, and the patient is unable to read or to recognize a friend on the street. Recovery of sight is not probable if the haemorrhage is deep-seated, and in any case vision is sure to be distorted—metamorphopsia—because of disturbance in the regular mosaic of the cones in the macula.

Types of Retinitis

High blood pressure, arteriosclerosis, and haemorrhage are the pathological forerunners of retinitis: but it is the quality of the blood that determines the distinctive aetiology in an individual case. Pathologists have described many varieties of inflammation of the retina; but the three most important clinical types—viz., the arteriosclerotic, the albuminuric, and the diabetic—are easily differentiated by an examination of the urine.

1. *Arteriosclerotic Retinitis*.—The ophthalmoscopy of this disease has been carefully described by Foster Moore, who was the first to suggest that it is a clinical entity distinct from albuminuric retinitis. In this form of disease persistent high blood pressure is always accompanied by extensive sclerosis of the retinal arteries. Its chief clinical characteristic is that the urine contains no albumin and there is complete absence of oedema. The patients are usually in late middle life, and are as a rule of stout build, of a fresh ruddy complexion, and of active habits. They enjoy speaking about their good health and often boast that they never require a doctor, while all the time their constitution is being steadily, though silently, undermined by the furtive advance of arterio-capillary fibrosis. Unless he has used the ophthalmoscope the family doctor may easily be put off his guard by the absence of albumin in the urine, and he is greatly taken aback when his patient is struck down suddenly by apoplexy or by a cardiac seizure. Mahomed insisted that high blood pressure rather than albuminuria is the pathognomonic sign of certain forms of Bright's disease, and some regard arteriosclerotic retinitis as a sign of chronic nephritis in which only the merest trace of albumin is found occasionally in the urine.

The ophthalmoscopic appearances vary according to the stage reached by the disease. Its onset is characterized by a reduction in the calibre of the arteries and by a loss of transparency of their wall. As the disease advances the veins are crushed where they are crossed by an artery, and many of the arterioles, especially those in the region of the macula, become twisted like a corkscrew. In the early stages the optic disk is pink from capillary congestion, but as the disease progresses it becomes pale and atrophic from sclerosis of its vascular supply. Small punctate haemorrhages, usually increasing in size and number, are seen scattered irregularly over the eye ground, and in addition there are numerous small circular hard-looking white spots situated for the most part in the central area of the fundus. The walls of the larger arteries become more and more opaque until at length the column of blood is concealed and the vessels resemble silver or copper wire. As time passes the lumen of the artery becomes almost obliterated and is now little more than a fibrous cord, and the area of the retina dependent upon it for its blood supply is starved, with the result that in the later stages of the disease patches of atrophy appear in the eye ground, and vision becomes permanently impaired.

2. *Albuminuric retinitis* can only be diagnosed after toxaemia, high blood pressure, and the presence of albumin in the urine have all been established. Both eyes are usually affected, but as a rule not to the same extent. The pathogenesis of the retinal changes depends upon high blood pressure and spasmodic constriction of the arteries; therefore the retinitis ought not to be regarded as a separate entity, but as an important and visible part of the general degenerative processes which are taking place in the kidneys. It is usually said that the patient is not likely to live more than two years after retinitis develops; probably that is true when applied to hospital patients as a whole, but there are many exceptions in private practice. The patient's general health does not become worse because his eyes have become affected, but the unfavourable prognosis after the discovery of the ocular signs is due to the fact that by the time the retinitis is detected the disease of the kidney is advanced and progressive. The earlier the retinitis appears, therefore, the worse the general prognosis, more especially if the disturbance in the eye coincides with the onset of uraemic symptoms.

Ophthalmoscopically the pathognomonic sign is oedema of the retina, and that is a sure indication that the reserve power of the kidney is being encroached upon. In the more acute cases white "cotton-wool" patches of soft-looking exudate are scattered over the fundus. The veins are distended and tortuous, and there are always signs of arteriosclerosis, accompanied by haemorrhages varying in both size and shape. They are scattered irregularly over the fundus, and are more numerous in the region of the macula. Lastly, one of the most characteristic features of renal retinitis is a star-shaped arrangement of minute white glistening spots round about the macula. This stellate arrangement of white dots, although very characteristic of albuminuric retinitis, is not pathognomonic of the disease, because it may occur in any form of acute neuroretinitis in which there is much oedema of the retina round about the macula.

3. *Diabetic retinitis* occurs for the most part in the elderly—more especially in those who suffer from a comparatively mild form of glycosuria complicated by high blood pressure, by an appreciable degree of arteriosclerosis, and by the more or less persistent presence of a trace of albumin in the urine. It is almost never seen in the young, who are the chief sufferers from the acute forms of diabetes. The ophthalmoscopic picture differs from that of albuminuric retinitis by the absence of oedema and the "cotton-wool" patches of exudation. There are, however, in a typical case round yellowish-white plaques, situated for the most part between the papilla and the macula. As the disease advances these patches tend to coalesce and ultimately to form a ring surrounding the whole macular region. Haemorrhage is the outstanding feature of diabetic retinitis; consequently the ophthalmic surgeon is more concerned about the sight than about the life of the patient. The degree of vascular degeneration is the most important factor in the prognosis. The vascular changes are steadily progressive, and for the most part they fall upon the veins. Even the characteristic deep-seated punctate haemorrhages which are so suggestive of diabetes are apparently derived from venous radicles, and in some desperate cases massive haemorrhages from the veins flood the vitreous humour. These copious dense haemorrhages frequently occur during sleep, and the patient awakens to find himself blind in the eye affected. In some cases both eyes are implicated.

Thrombosis of the central blood vessels of the retina is the ocular complication most to be dreaded when glycosuria is accompanied by albuminuria and when high blood pressure is persistent. Vision is lost suddenly, but several premonitory seizures usually occur before blindness becomes permanent. This condition ought always to be regarded as a serious warning of cardiovascular failure. The eye itself is also seriously compromised, because thrombosis is always accompanied by profuse retinal haemorrhage, which is often followed by the onset of secondary glaucoma. When that stage is reached the patient suffers from incurable blindness and more or less constant pain; consequently enucleation of the eyeball is the only treatment that can bring relief.

Commentary

To sum up very briefly, my endeavour has been to reach the following conclusions:

1. The interior of the living eye is a laboratory in which vital processes, both normal and abnormal, can be studied during the patient's lifetime.

2. Vascular changes such as capillary congestion, arterial degeneration, haemorrhage, and exudation can be seen with the ophthalmoscope; but the value of such observations in the prognosis of general disease cannot be properly estimated until they are correlated with such symptoms of general disease as high blood pressure, albuminuria, glycosuria, uraemia, and anaemia.

3. The debt which general medicine owes to ophthalmology cannot be fully appreciated until the physician examines the eye with the ophthalmoscope as habitually as he feels the pulse, interrogates the heart and lungs, and applies chemical and microscopical tests to the urine.

HAEMATEMESIS AND MELAENA

WITH SPECIAL REFERENCE TO BLEEDING PEPTIC ULCERS

BY

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This paper reports results of treatment by prompt feeding and liberal blood transfusions in 171 consecutive admissions for recent frank haematemesis and/or melaena, between June, 1940, and December, 1942. They were treated in the dietetic wards of a modern municipal hospital serving a large industrial and poor residential district of Greater London. A careful study has been made of the cause of bleeding and of the type of case which proves fatal.

Diagnosis

Selected cases were gastroscoped soon after the haemorrhage, usually within a week or less. No serious complication occurred, although it is generally believed that gastroscopy is dangerous when performed shortly after bleeding. A barium meal was given as soon as the patient could start getting up, usually in the third or fourth week. If cirrhosis hepatis was suspected a hippuric acid excretion test of liver function was performed. A detailed history and an examination were recorded in every case. The final diagnoses are listed in Table I.

TABLE I.—*Final Diagnoses*

	Admissions			Deaths
	No.	Male	Female	
Chronic lesser curvature ulcer found by x-ray, operation, or necropsy	30	26	4	7
Acute gastric ulcer found by early gastroscopy but not visible when radiographed later	21	15	6	0
Acute gastric ulcer found at necropsy	1	0	1	1
Pyloric ulcer	2	2	0	0
Chronic gastric and duodenal ulcers	5	4	1	0
Duodenal ulcer	47	36	11	3
Duodenal ulcer with gastro-enterostomy	6	6	0	0
Jejunal ulcer (gastro-enterostomy)	2	2	0	0
Localized jejunitis	1	1	0	0
Probable peptic ulcer with thoracic stomach	2	0	2	0
Peptic ulcer of Meckel's diverticulum	1	1	0	0
Haemorrhage complicating perforated gastric or duodenal ulcer	7	6	1	3
Acute gastritis	2	2	0	0
Carcinoma ventriculi	4	2	2	0
Leiomyoma ventriculi	1	1	0	0
Portal thrombosis—gastrostaxis	1	1	0	1
Cirrhosis hepatis	4	1	3	2
Uncertain (6 patients not investigated)	34	21	13	0
Totals	171	127	44	17

Gastroscopy was performed in 38 out of 51 cases which clinical and radiological investigations failed to diagnose. In 21 of these cases an acute gastric ulcer was found, and in 2 an acute gastritis. The remaining 15 remained undiagnosed. That is to say, in nearly two-thirds of the cases in which other methods failed gastroscopy provided a diagnosis. It is thus obvious that gastroscopy is of great assistance in achieving accurate diagnosis. The chronic gastric ulcers which were shown by radiographs had a much higher mortality than the acute ulcers which were only shown by gastroscopy. These acute ulcers usually healed within three weeks, and are being reported in another communication.

At this hospital all peptic ulcers are admitted to the dietetic wards, including those that are perforated. Seven cases were observed with both haemorrhage and perforation. This combined complication presented a difficult problem in treatment, with a high mortality. Three of the seven patients died.

Age Incidence

Gastro-duodenal haemorrhage is more often fatal in the elderly patient, and the age incidence, which is given in Table II, must be taken into account in comparing these results with other series.

TABLE II.—*Age Incidence of Cases of Haemorrhage from Proved or Probable Peptic Ulcer*

Age	Male		Female	
	No.	Deaths	No.	Deaths
10–19	1	0	0	0
20–29	4	1	1	0
30–39	17	0	3	0
40–49	32	1	8	0
50–59	34	2	13	1
60–69	27	5	10	3
70–79	5	1	3	0
80+	2	0	1	0
Totals	122	10	39	4

The proportion of patients over 60 is considerably higher than in previous series of haemorrhage from peptic ulcer—e.g.:

	Hospital	Period	Total No.	No. over 60
Bulmer (1927)	Birmingham General Hospital	1902–26	467	9 (2%)
Hellier (1934)	General Infirmary at Leeds	1926–32	212	15 (7%)
Cullinan and Price (1932)	St. Bartholomew's	1926–30	105	11 (10%)
Burger and Hartfall (1934)	Guy's	1921–30	137	13 (10%)
Scott (1940)	Western Infirmary, Glasgow	1936–40	110	18 (16%)
Present series		1940–2	161	48 30%)

There are three possible factors which may account for the higher age incidence in the present series. First, many of the younger patients may be in the Services and so be referred to Army hospitals; but this would not account for the apparent absolute increase in older admissions. Secondly, wartime conditions may have caused an increase in peptic ulceration among the elderly, and this theory is supported by an analysis of the admission book at St. Bartholomew's Hospital (18% over 60 in 1940-2, against 10% in 1926-30). Thirdly, general practitioners tend to send the older and more decrepit patients to municipal hospitals, where admission is certain; and my own experience has shown that in these hospitals one is confronted with problems in treatment in the very elderly which are seldom to be found in the teaching hospitals.

Treatment

Treatment was along the general principles described by Witts (1937). A drip blood transfusion at 40 drops a minute was begun if it was thought that further bleeding might endanger life. If the patient showed evidence of anoxaemia the transfusion was usually given faster and oxygen was administered at 6 litres a minute with a B.L.B. mask. In general most patients were transfused if the pulse stayed above 120 a minute, if the blood pressure fell below 90 mm. Hg, or if the haemoglobin reached 40%; but it was not found possible to follow any fixed set of figures rigidly, and each case was judged according to its own particular circumstances. The transfusions were liberal, and usually two bottles (1,080 c.cm.) were given, being repeated if necessary. With persistent bleeding, four or six bottles were sometimes required. In 12 patients the blood volume (5,000 c.cm.) was replaced at least once. Using the M.R.C. gas-mantle set, it was seldom necessary to cut down on a vein. This was a great advantage because repeated transfusions could be given into the same vein, and the simplicity of the method was a boon to the nursing staff. The patients received two-hourly purée feeds. One-third normal saline was given to allay thirst. The feeds were usually well taken, but occasionally milk feeds would be given if desired.

Purée Diet

6 a.m. Cup of milky tea
8 a.m. Porridge and bemax; thin bread-and-butter and jelly marmalade; cup of milky tea
10 a.m. Cup of milk and biscuit
12 noon: Minced meat, chicken, or steamed fish; mashed potato; purée carrot or cauliflower
2 p.m. Egg custard or cereal pudding or apple purée; orange juice
4 p.m. Cup of milky tea; three slices of thin bread-and-butter; bramble jelly; sponge cake
6 p.m. Vegetable soup or minced chicken sandwich
? p.m. Milk pudding or cup of milk
10 p.m. Cup of milk and biscuit
Milk feeds during the night if awake
One-third normal saline as desired between feeds on first day

Morphine was given on admission and whenever further bleeding occurred, fersolate 3 gr. t.d.s. when melaena had ceased, and ascorbic acid 200 mg. t.d.s. for five days and then 50 mg. daily. Antacids were not given as a routine, but calcium and magnesium tribasic phosphate was allowed for pain. The patients were reassured about the invariable constipation, and an enema was given after four days if necessary. Laparotomy for arrest of haemorrhage was undertaken on only three occasions, but partial gastrectomy or gastro-enterostomy was performed during convalescence if indicated by economic circumstances or by the type of lesion.

Results

In these 171 cases there were 17 deaths (10%). This series includes gastric tumours, portal varices, and portal thrombosis. In 161 cases of bleeding from proved or probable peptic ulcer there were 14 deaths (9%). Miller and Nicholson (1941) have analysed 1,396 cases, treated by prompt feeding, with a mortality of 3.1%. In view of such previously good results this series is most disappointing, and indeed contrasts depressingly with my experience at another hospital (Jones, 1939a). Obviously, with the type of case admitted to this hospital, gastro-duodenal haemorrhage still carries a severe mortality, which demands a careful analysis to discern the type of case that continues to be lost and to assess the value of surgical treatment. The crux of the problem is shown in the following table. Out of 14 patients who died nine had severe complications, nine were over 60 years of age, and nine had simple ulcers more than 3 cm. in diameter.

TABLE III.—*Details of 14 Fatal Cases*

Age	Sex	Clinical Complications	Type and Size of Ulcer
51	F	Admitted moribund	Acute G.U.; 1 cm.
62	M	,, ,,	Chronic D.U.; 2 cm.
67	M	Perforation	Two chronic D.U.s; 2×1 cm., 1×0·5 cm.
56	M	,,	Chronic G.U.; 7·5 cm.
67	F	,,	,, ,, 5×3 cm.
67	M	Lobar pneumonia	Chronic D.U.; 2·3×4.5 cm.
62	F	Bronchopneumonia	Chronic G.U.; 6 cm.
60	M	Perforated appendix with general peritonitis 12 days previously	,, ,, ? size
42	M	Ascites hypoproteinaemia (laparotomy)	,, ,, 10 cm.
53	M	(Laparotomy)	Chronic G.U.; 3×5 cm. Acute G.U.; 1×0·5 cm.
65	M	,,	Chronic D.U.; 5×3·5 cm.
25	M	—	Chronic G.U.; 3×2 cm.
72	M	—	,, ,, 5×3 cm.
63	F	—	,, ,, 2×1·5 cm.

Two patients were admitted moribund, and neither would have survived laparotomy. It is doubtful whether the acute ulcer in one of these patients would have been found if operation had been possible. Six patients had such grave complications or such severe associated diseases that surgical arrest of the haemorrhage was hardly feasible. General peritonitis from a perforated appendix, perforation of a peptic ulcer, lobar pneumonia or bronchopneumonia are themselves serious enough in elderly patients, and much increase the hazards of a gastric haemorrhage. Laparotomy during active haemorrhage was performed in three cases, but the patients died. In the remaining three cases the treatment remains debatable, but it is doubtful if surgery would have saved any of them except perhaps one—that of a young man of 25. At this age death from gastro-duodenal haemorrhage is so rare that surgery was hardly contemplated, and probably his heavy alcoholism tipped the scales against him.

The literature on bleeding peptic ulcers gives such a diversity of results for medical and surgical treatment that it is difficult to formulate treatment from them. The confusion is probably due to important variables in the different series, especially the proportion of elderly patients, their nutritional state, the incidence of associated disease, and the proportion of acute to chronic ulcers. It seems reasonable to analyse the type of case coming under one's care and to draw up rules for their treatment—rules which do not necessarily apply where a different class of patient is being treated. The problem is whether to continue to give prompt feeding and liberal transfusions, and when operation should be advised.

Prompt Feeding and Liberal Transfusion

There is no doubt that the mortality from bleeding has been reduced. It is still uncertain whether recurrences of bleeding occur more often with a liberal diet or large transfusions than they did with the older regime of starvation and only small transfusions. To study these points the series has been compared with that recorded by Cullinan and Price (1932) from St. Bartholomew's Hospital (1926-30). This report included only admissions for haematemesis that could reasonably be attributed to peptic ulcer, but cases in surgical wards were not included. For comparison with this series the following have been excluded: patients with melaena only, with surgical complications—e.g., perforations—with gastric tumours, cirrhosis hepatis, and portal thrombosis. Cullinan and Price's cases were treated on a very restricted fluid intake and occasional small transfusions (300 to 500 c.cm.). In many of the fatal cases on this regime there was extreme dehydration (Jones, 1939b).

Age	Cullinan and Price, 1932		Present Series, 1942	
	No.	Deaths	No.	Deaths
10–19	1	0	0	0
20–29 ..	12	0	4	1
30–39	15	3	13	0
40–49	29	6	28	0
50–59	37	6	40	2
60–69	11	4	31	6
70–79	0	0	7	1
80+	0	0	3	0
Totals ..	105	19	126	10

The total mortality has been more than halved, although the scales are heavily weighted against the present series by the higher age incidence. It will be seen that below the age of 60 the mortality has fallen from 15 in 94 cases to 3 in 85 cases. Above 60 the mortality has improved from 4 deaths in 11 cases to 7 deaths in 41 admissions.

Death usually occurs after recurrent bleeding and seldom with the first haemorrhage. The reduction in mortality may have been effected either by decrease in the incidence of recurrent bleeding or by making the patient better able to withstand further haemorrhage. It is necessary to know the effect of early feeding and liberal transfusion in the incidence of recurrent brisk bleeding. Again this series has been compared with Cullinan and Price's figures.

Recurrent Haemorrhages

	Cullinan and Price, 1932		Present Series, 1942	
	No.	Deaths	No.	Deaths
All admissions for haematemesis from probable peptic ulcer, excluding surgical admissions	109	19	126	10
Those which recurred	39	16	35	6
Those which recurred more than once	21	12	23	6

With early feeding and big transfusions the incidence of recurrent haemorrhage has appreciably diminished, and neither feeding nor transfusion can therefore be accused of promoting further bleeding. The reduction in mortality has been effected partly because recurrent haemorrhages are less frequent and partly because when they do occur the patients are better fitted to withstand them. There seems every reason to continue to give prompt feeding and liberal transfusions.

Surgical Treatment

Cases in which surgical treatment is likely to be considered fall naturally into two groups: first, when the cause of bleeding is certain; secondly, when it is obscure.

Known Causes

1. *Acute Gastric Ulcer.*—Although the haemorrhage from acute gastric ulcers can be exceedingly severe and protracted, the only case lost was admitted moribund, and died within a few hours. Fifty-one cases of probable acute ulceration with only one death argues against operation.

2. *Post-operative Cases.*—In patients with a previous gastro-enterostomy the haemorrhage tends to be slow and persistent rather than brisk, and probably in severe cases it may arise from a localized jejunitis. Such appalling difficulties may be found at laparotomy that conservative treatment is justified.

3. *Haemorrhage with Perforated Peptic Ulcer.*—Haemorrhage with perforation accounted for 3 deaths among 7 cases which presented extreme problems in treatment. In one fatal case there were two kissing duodenal ulcers—one bled and the other perforated. If this combination is suspected at operation it would be advisable to perform a short circuit and pyloric occlusion, or a partial gastrectomy if the conditions are propitious.

4. *Duodenal Ulcer.*—There were 3 deaths among 47 admissions with duodenal ulcers. Only one could be considered as a death during treatment for haemorrhage. Again, with the great technical difficulties of operating on a penetrating duodenal ulcer a medical bias is justifiable, except when haemorrhage is extremely brisk or repeated and if the patient is over 50.

5. *Chronic Gastric Ulcers.*—The important mortality has been among the patients with chronic lesser curvature ulcers, with 7 deaths among 30 cases (23%). Considering the age, associated complications, and chronicity of the ulcers it is doubtful if any surgeon could have achieved a substantially lower mortality if all 30 cases had had early radical operation. Bohrer (1941) gives a mortality of 26% for bleeding gastric ulcers treated surgically. Nevertheless, it is in this group that timely surgery might save a few cases which would prove fatal in spite of continued transfusion. The clinical observations of grave significance are:

Thickened tortuous radial artery

Age over 50 years—5 deaths out of 18 (28%)

Severe pain preceding haemorrhage—5 deaths out of 12 (40%)

Pain persisting after haemorrhage—2 deaths out of 4 (50%)

Recurrent bleeding: once—6 deaths out of 12 (50%); twice—5 deaths out of 8 (60%)

By selecting cases which came partly or wholly within this group a reduction in mortality from bleeding chronic gastric ulcers might be effected by *early* operation, and this aspect is being further studied.

Diagnosis Uncertain

Sometimes one is confronted with an exsanguinated patient without a definite diagnosis, but the case will become operable only if it can be included in the indications given above. The length of history, the site of the pain, the food relationship, and the severity of the haemorrhage are all unreliable in deciding the position and nature of the ulcer. The necessity for continued massive transfusion is not in itself sufficient reason for operation. Four patients with acute gastric ulcers had repeated severe bleeding, and needed 11,340, 6,480, 5,940, 3,780 c.cm. of blood respectively, but with routine medical treatment the haemorrhage eventually stopped. A history of severe pain, especially for more than three weeks, is very suggestive of a chronic ulcer. The histories of the proved acute and chronic ulcers in this series have been analysed thus:

Recent Pain or Discomfort	Acute Gastric Ulcer	Chronic Gastric Ulcer
No pain or discomfort ..	8	1
Discomfort	7	2
Pain	7	15
Severe pain	0	12
Totals	22	30

It is legitimate in doubtful cases to try to clinch the diagnosis by screening with a thin barium emulsion or by gastroscopy. Therefore if the patient can be proved to have chronic gastric ulceration, or in exceptional circumstances chronic duodenal ulceration, and is over 50—and especially if there is thickening of the radial artery, history of severe pain, or pain persisting after admission or recurrence of haemorrhage—then operation may be advised. Nevertheless, to improve on medical treatment it is essential to have an exceptionally experienced surgeon, and a skilled anaesthetist available at short notice. If this is not forthcoming no physician need reproach himself for continuing with medical treatment.

Organization

To obtain the best possible results after haemorrhage from peptic ulcer, good organization is essential. The first requirement is an adequate blood bank. There is much to be said for nursing all cases in special dietetic wards, where the nursing staff can become very expert in all phases of treatment. The medical staff should be agreed on the routine management, and a treatment schedule in the wards is of value.

A follow-up of all proved chronic gastric ulcer patients is invaluable, for intractability can be discovered early and partial gastrectomy advised. In due course this must reflect itself favourably in the mortality rate for gastro-duodenal haemorrhage.

Summary

An analysis is presented of 171 cases of haematemesis and/or melaena personally treated by prompt feeding and liberal transfusions. There were 17 deaths (10%).

Peptic ulceration was the probable cause in 161 cases, among which there were 14 deaths (9%).

Early gastroscopy gave the diagnosis in nearly two-thirds of the *x*-ray-negative cases. Acute gastric ulcer is a relatively common cause of bleeding, but acute gastritis is rare.

Of the peptic ulcer subjects 30% were over 60 years of age—a much higher proportion than in previously published series.

Old age, severe complications or associated disease, and large ulcers were important factors in causing death.

Prompt feeding and liberal transfusions have decreased the incidence of recurrent bleeding.

The indications for surgery are discussed.

My thanks are due to the North-Western Blood Transfusion Depot for their liberal supplies of blood, to Dr. H. Pollak for his able assistance, and to Dr. R. Asher for his valuable suggestions.

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PRIMARY BRONCHIAL CARCINOMA AT THE AGE OF 4 YEARS 4 MONTHS

BY

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Primary carcinoma of the bronchus is a condition that has attracted much attention in latter years, particularly on account of the increasing number of cases seen. Many authors have collected series of cases in attempts to discover whether this increase is absolute or only apparent. Those who hold that the rising number of cases observed is apparent invoke refinements of diagnosis—e.g., radiography, bronchoscopy, and biopsy—to support their contention; others maintain that the increase is absolute. Recently Menne and Anderson (1941) have published observations upon two series of necropsies in America, which they cite as evidence for the increasing frequency of bronchial carcinoma. In all probability there is both a real and an apparent increase in the incidence of the condition.

The growth commonly occurs in the age period generally favoured by carcinomata but with maximal incidence between 50 and 59 years, whereas the frequency of other cancers is maximal at an older age (Simons, 1937). In the age group 20–29 cases are seen from time to time; in the decade 10–19 Simons found only 6 cases in his collected figures (total 2,796). The period 0–9 years in his table shows only one case, and this in a boy aged 5 years (Hirsch and Ryerson, 1928). Beardsley (1933) reported a case of carcinoma of the lung in a female aged 10 months; and McAldowie described the clinical and necropsy findings in a boy aged 5½ months with multiple nodular growths in both lungs, but no histological examination was performed. To these 3 cases we would add the one reported below (see Table), which was histologically an anaplastic carcinoma of the bronchus in a girl aged 4¼ years.

Beardsley quotes Nuscheler (1875) as referring to a case of carcinoma of the lung in a girl aged 7 years; and McAldowie quotes Ebermann, who found one case in his series of 76, in

a child under 9 years of age. These references are unobtainable and therefore cannot be included in the above series.

Both Beardsley's and Hirsch and Ryerson's cases were notable for the fact that secondary lesions were found, in the lumbar region in the former and in the tibia in the latter, before lung mischief was diagnosed. In our case the lung condition attracted immediate attention, and it was not until the pre-terminal phase that secondary metastases were found clinically. The particular interest of our case lies in the age of the patient, the anaplastic nature of the growth, and the possibility of accurate diagnosis in the living.

Reported Cases of Carcinoma of the Lung for the Age Period 0–10 Years

Authors	Age at First Attendance	Sex	Duration of Illness from Onset of Lung Symptoms	Clinical Findings	Necropsy	Histology
McAldowie (1876)	5½ months	Male	5½ months	Wasting since birth	Multiple nodules in left lung involving pleura, with many adhesions. Multiple nodules in right lung without pleural involvement. Secondaries in mediastinal glands	No report
Hirsch and Ryerson (1928)	5 years	Male	5 months	Secondary tumour appeared in right tibia 16 months before lung symptoms	Primary carcinoma of right lower lobe. Secondaries in mediastinal glands, left lung, right upper lobe, and thymus, also left tibia	Bronchogenic carcinoma
Beardsley (1933)	10 months	Female	2 months	Secondary growth in lumbar region appeared one year before chest symptoms	Primary carcinoma in left lung involving pleura, with adhesions	Adenocarcinoma of left lung
Field and Quilliam (Reported below)	4½ years	Female	2½ months	Dyspnoea produced by large blood-stained pleural effusion. Terminally the neoplasm involved the rib spaces and anterior chest wall	Nodules of growth in collapsed right lung involving visceral and parietal pleura and chest wall. Metastases in bronchial, mediastinal, right supraclavicular, axillary, and coeliac axis glands	Anaplastic carcinoma of bronchus

Case Report

The child, a girl aged 4½ years, was admitted to hospital on Nov. 22, 1941, as an emergency case, having had an unproductive cough for 11 days and breathless attacks in the mornings for the last week. For 10 days she had had attacks of abdominal pain with nausea and vomiting. On admission the child was pale, with some cyanosis of the lips and nails and marked dyspnoea. Physical examination of the chest indicated the presence of a right pleural effusion, which was confirmed by radiographs. The effusion steadily increased, and aspiration gave 300 c.cm. of a deeply blood-stained fluid. Five further aspirations in the next seven days yielded 1,780 c.cm. of a similar fluid. The last aspiration was followed by an air replacement, which considerably relieved the cough and dyspnoea.

A radiograph of the chest (Fig. 1) now showed a fluid level on the right side at about the 7th thoracic vertebra, an artificial pneumothorax above this, the right lung collapsed at the hilum, and a nodular mass of growth at the periphery. So far no glandular enlargement had been detected and no mass felt in the abdomen.

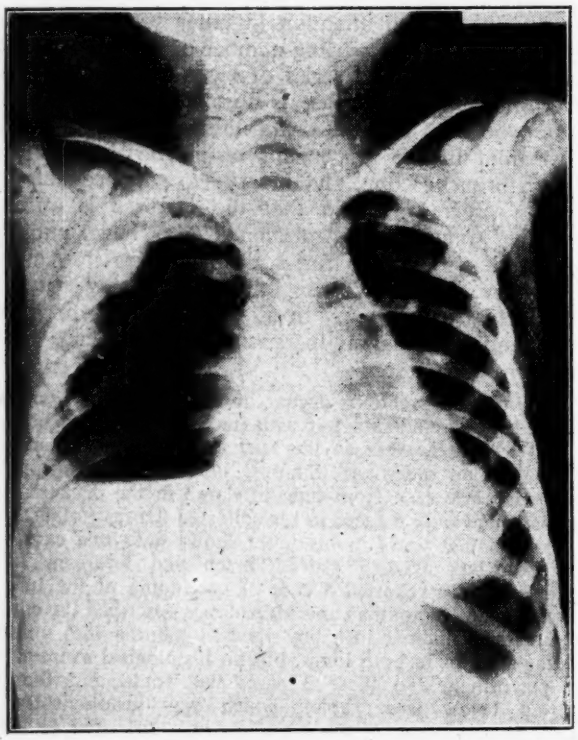

FIG. 1.—A radiograph of the chest taken after aspiration of the right side and air replacement, showing the right lung collapsed at the hilum and nodules of growth on the parietal pleura.

On Dec. 13 thoracoscopy revealed the presence of numerous round, smooth, pink nodules of tissue of varying size up to 2 cm. in diameter, widely distributed over the parietal pleura. The lung was collapsed, and was covered with thickened but smooth pleura. A biopsy specimen was taken from one of the nodules.

Report on Fluid Withdrawn.—No tubercle bacilli were found. Guinea-pig inoculation was negative for Koch's bacillus. Culture was sterile. Examination of blood-clot showed a considerable number of cells in addition to red blood cells. Mesothelial cells predominated; some contained double nuclei, and an occasional mitosis was present. The remaining cells were mostly lymphocytes. The findings were suggestive of malignancy.

Report on Portion of Pleural Tumour.—The section showed an infiltrating anaplastic carcinoma with the histological features of a bronchial carcinoma. A neuroblastoma had been considered, but the characteristic " rosettes " were not present.

Progress.—A further aspiration and air replacement were carried out on Dec. 24 on account of respiratory embarrassment. The child's condition slowly deteriorated. The lower part of the right chest wall began to bulge and the rib spaces became filled in compared with the other side. Terminally, the ribs appeared embedded in the tumour mass. The final stage was marked by distressing bouts of coughing and dyspnoea. A week before death a fixed right supraclavicular gland was discovered; the day before death this gland was found to be further enlarged, and a gland was palpable in the right axilla. The child died on Jan. 28, 1942.

Pathological Findings.—The tuberculin patch test and the intradermal Mantoux test 1/100 were negative. Repeated red blood cell counts showed no marked anaemia, and 10 days before death the Hb (Haldane) amounted to 94%. The white cell counts showed a moderate polymorphonuclear leucocytosis, which increased terminally.

Post-mortem Examination

External.—Fairly well nourished. Right side of chest was enlarged and bulging anteriorly.

Respiratory System.—On reflecting the skin of the chest wall on the right side a firm white new growth was seen in all the intercostal spaces, infiltrating the subcutaneous tissue. It was continuous with tough white growth involving the whole of the parietal pleura, which was greatly thickened, measuring 1.5 cm. at its maximum width. In some areas the growth was soft and breaking down into creamy fluid. The right dome of the diaphragm was pushed down and invaded and greatly thickened by the neoplasm, which appeared on the under surface as large white nodules to which the upper surface of the right lobe of the liver was firmly adherent, but there was no infiltration. Behind the liver the growth extended downwards retroperitoneally to the level of the renal veins. This extension was formed chiefly by aortic lymph glands enlarged by growth. The heart and mediastinum were displaced to the left.

The visceral pleura of the right lung was similarly infiltrated to a maximum thickness of 1.2 cm., and the right lung was completely collapsed and fixed against the vertebrae. Four firm, broad, fleshy bands of the growth extended between the two layers of the pleura; they appeared like adhesions replaced with growth. On the cut surface of the right lung small areas of collapsed lung tissue were visible (Fig. 2), but the greater part consisted of white, somewhat

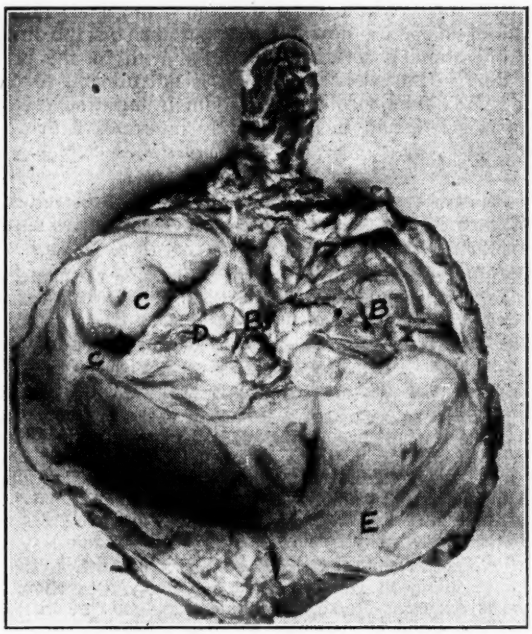

FIG. 2.—The neoplastic mass opened to show the collapsed lung containing nodules of growth, the parietal pleura greatly thickened and infiltrated, and bands of neoplastic tissue connecting the two. A, Tongue. B, Collapsed lung. C, Neoplastic bands. D, Nodules of growth. E, Parietal pleura.

soft growth. The bronchi contained muco-pus. Many bronchi were involved in the neoplasm, but this could not be seen actually arising from a bronchial wall. The hilar glands were much enlarged with white growth. The trachea and bronchi of the left lung contained muco-pus; the left hilar glands were not enlarged. Both lobes of the left lung were partly collapsed. Two small, flat, thin, round plaques were seen on the visceral pleura of the left upper lobe.

There was considerable venous engorgement in the chest and neck veins. The lumen of the oesophagus was irregularly distorted by discrete mediastinal glands enlarged by secondary neoplastic deposits. The liver showed a pale mottling; its relation to the growth has already been described. Metastases were detected in the right bronchial, all the mediastinal, the right supraclavicular, one large right axillary, and the coeliac axis lymph glands. The right adrenal gland was displaced and partly surrounded by an extension of the neoplasm beneath the diaphragm, but the capsule of the gland appeared intact, a fact confirmed microscopically. The left adrenal was normal.

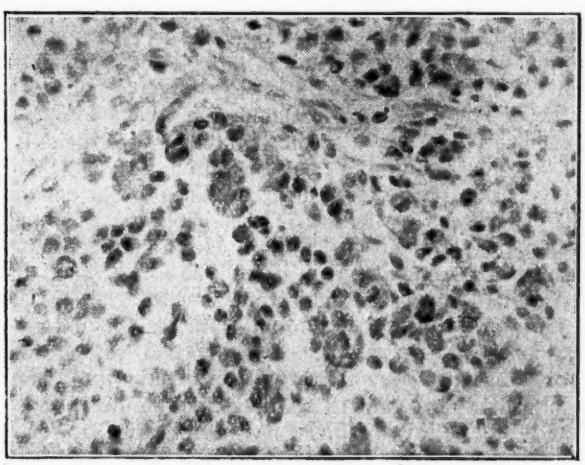

FIG. 3.—Photomicrograph showing masses of polyhedral cells and a few multinucleated giant cells.

Microscopical Examination.—Sections of the right lung and pleura and lymph glands showed a poorly differentiated carcinoma (Fig. 3) composed of masses of polyhedral cells varying in size and including multinucleated giant-cell forms in some areas. In many places where the tumour cells outlined the trabeculae of connective tissue they tended to be columnar-shaped. A large number of the cells were somewhat vacuolated; sections stained with mucicarmine gave an indefinite result. A few small areas of necrosis were present. Mitoses were not numerous.

Conclusion

The growth was an anaplastic carcinoma of the bronchus with extensive pleural involvement and metastases in the bronchial, mediastinal, right supraclavicular and axillary, and coeliac axis lymph glands.

We wish to express our thanks to Dr. W. J. Pearson for permission to publish the case and to Prof. R. S. Pilcher for performing the thoracoscopy and biopsy. We are indebted to Dr. D. M. Vaux of the E.M.S. Pathological Service for conducting the necropsy and reporting upon the fluid, the biopsy, and post-mortem material.

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NASAL INTUBATION: DANGERS AND DIFFICULTIES FROM THE RHINOLOGICAL ASPECT

BY

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Pernasal intubation is to-day so often employed as a preliminary step in anaesthesia that it is perhaps not out of place to emphasize, from the rhinological standpoint, how necessary it is to have an adequate knowledge of the existing intranasal conditions in every case, in addition to a realization of the implications of the widely varying anatomy of the nose and of the factors limiting the safety of nasal intubation which nasal pathology can introduce. The fact that damage to the delicate structures of the nasal defensive mechanism occurs so relatively infrequently reflects great credit on the skill and care of the anaesthetist of to-day; but that harm can, and does, result cannot be denied, and serious consequences have followed the passage of a tube, either from faulty technique or from ignorance of the presence of intranasal conditions which should have debarred intubation. In other cases, less serious and often overlooked sequelae have manifested themselves later.

The nasal passages have highly important and essential physiological functions to perform: by warming, moistening, and filtering the inspired air they provide a highly specialized defensive mechanism for the protection of the respiratory tract; they ventilate the nasal sinuses, and provide drainage for them when necessary; the patency of the Eustachian tube is maintained via their channels, and the olfactory sense is dependent on their healthy state. These nasal channels, lined by highly vascular ciliated epithelium, are often tortuous, frequently obstructed by large sharp spurs, and always intolerant of abuse.

It is unwise to regard every patient as possessing a nose which is a safe channel for the passage of a tube, or all types of case as being suitable for nasal intubation. As unwelcome complications, although infrequent, can follow this method, it is well that it should be reserved only for those cases in which it is clearly indicated and in which other methods, unattended by the same potentialities, have proved inadequate. It is not contested that nasal intubation, which owes so much to the genius of Dr. Magill, is an excellent procedure in selected cases and in the hands of those who realize the need for respecting certain contraindications. The enormous number of successful cases bear witness to its efficiency, and the following observations are merely a plea for a realization of certain difficulties and dangers which are met with, and an attempt to help in surmounting them. The subject is approached purely from the rhinological aspect, and no particular knowledge of anaesthetics is professed. It is the oto-rhino-laryngologist,

and not the anaesthetist, who is confronted with these occasional complications, not only because such complications are almost invariably the concern of his department, but because the cases most likely to be affected are those in which nasal and pharyngeal operations, and tonsillectomy in particular, have been performed.

It is clearly unwise to pass a tube through a nasal passage the interior of which is a closed book to the introducer; it is not enough to ask a patient if he can breathe through the chosen airway, as that will disclose neither a sharp spur nor an infected nose. More useful help can be gained by an examination with a headlight *after* shrinking with cocaine; this may reveal a passage in which trauma is unavoidable, and which not even the most gentle persuasion could negotiate with safety: trauma is the prerequisite of all intubation troubles.

Complications

Haemorrhage.—This may be caused by undue force being applied in a narrow nose or by coming up against an impassable obstruction: the highly vascular mucous membrane is abraded, and the seeds of possible infection are sown. In a few cases haemorrhage has been very considerable, and in one tonsillectomy case the surgeon was blamed because the patient lost as much as two pints of blood.

Infection.—This is secondary to abrasion of the mucosa, although it may be caused primarily by faulty aseptic technique. Though more likely to occur in an already infected nose—in which case an aggravation of symptoms will result—it may also be found in a hitherto perfectly healthy one. In tonsillectomy or septic pharyngeal cases infection is particularly likely to occur if trauma has taken place; but the causation in these cases is different, and it is, I believe, the *withdrawal* of the tube from an infected field over the abraded area in the nose which is responsible. It was the occasional virulent sinus infection after tonsillectomy in a war hospital that first attracted my attention, and I noticed that this sequence had occurred: haemorrhage from the intubated side of the nose, followed by an infection of the antrum on the same side, in cases in which radiographs and transillumination had shown the antrum to be healthy before operation. By withdrawal of the tube, on which have accumulated organisms and septic blood-clot resulting from the operation, and depositing these on the abraded mucosa or sinus ostia, infection is readily initiated. Such sinus or nasal infections greatly increase the patient's discomfort and prolong convalescence; they rarely clear up without intranasal drainage, and may necessitate a stay in hospital, in Service cases, of 4 to 6 weeks instead of the usual 7 to 10 days. Such nasal infections may encourage secondary haemorrhage from the tonsillar bed or nasal passage or lead to acute otitis media. It is indeed difficult to explain to the tonsil patient why the antrum should require puncture, the ear an incision, or the nose packing.

Adhesions between the two surfaces of the nasal passage, septal and turbinal, may follow if both of these have been traumatized in opposed areas.

Some Contraindications

(*a*) If the operation and anaesthesia can be in every way efficiently, safely, and satisfactorily controlled by other methods, nasal intubation is not the preferable method rhinologically.

(*b*) Large sharp spurs, marked turbinal hypertrophy, and gross septal deviations should be considered contraindications, particularly in cases of tonsillectomy or septic pharyngeal states. Purulent secretions and crusts, alar and vestibular infections, and large polypi should also debar the passage of a nasal tube.

(*c*) Septicaemic or very toxic patients are not suitable subjects for intubation; if intubated at all, the oral route is preferable, and particular gentleness is required, as a minimum of trauma to the nasal, laryngeal, or tracheal membranes is likely to be followed by a serious spread of infection.

(*d*) Tubes which have slipped into the oesophagus are likely to be infected, and are better not withdrawn through the nose or reinserted into the nasal passages, particularly if bleeding during introduction has occurred.

(*e*) In cases with a history of recurrent sinusitis the oral route is preferable.

(*f*) Cases in which one side of the nose is being operated upon are better not intubated via the remaining nostril; particularly if the lesion is an infective one, the oral route is again preferable.

(*g*) Children undergoing removal of tonsils and adenoids should not be pernasally intubated. It is unwise to pass a good-sized tube past a large adenoid pad; and, moreover, removal of adenoids, now often undertaken as the first step in the operation, is seriously interfered with by the presence of the tube in the nasopharynx. It is not difficult to remove tonsils with a tube through the mouth if intratracheal anaesthesia is desired, and this in no way interferes with adenoid removal.

Precautionary Measures

The following suggestions, most of which are well known but will bear repetition, are made in an endeavour to surmount some of the difficulties presented:

1. Careful sterilization of the hands, all instruments necessary for intubation, sprays, and lubricants is essential; these are best placed on a sterile towel spread over the patient's chest.

2. The nasal passages should be sprayed with 5% or 10% cocaine before anaesthesia is begun.

3. Inspection of the selected airway with a good headlight is advisable.

4. If there is resistance to the passage of a tube no attempt to force a passage is permissible. If much bleeding has followed the attempt the tube should be withdrawn and antiseptic ointment (sulphanilamide, for example) inserted. The tube should now be inserted, preferably by the oral route, though in some cases the use of the other nostril may be reverted to after inspection.

5. All blood-clot and secretions should be removed from the throat and post-nasal region in tonsil cases, preferably by suction, before the tube is removed; fragments of infected blood-clot are likely to be withdrawn along with the tube and deposited in the nose.

6. If it is known that trauma has occurred during intubation it is possible to withdraw the tube via the pharynx at the end of the operation. By grasping it with forceps as it lies in the posterior pharynx it can be withdrawn bent upon itself, from larynx and nose simultaneously; by this means the infected tube does not pass over the abraded mucosa. With soft tubes this manœuvre is simple; with more rigid ones it is difficult. It is possible to cut the tube in half in the pharynx, and withdraw it in two pieces; it is needless to add that this suggestion will not meet with universal approval in these days of rubber shortage; but, nevertheless, it is an easy way out if the need is imperative.

MAINTENANCE TREATMENT WITH DIGITALIS

BY

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(*From the Department of Materia Medica and Therapeutics, University of Glasgow and Stobhill Hospital, Glasgow*)

It is a well-established clinical practice to recommend the continuance of a maintenance dose of digitalis for patients with congestive cardiac failure who have responded well to the drug. Gold (1941) stated that "only about 15% of cardiac patients owe to the habitual use of digitalis the fact that they are able to carry on with a reasonable degree of comfort. The reputation of the drug is not enhanced, to say the least, by its use in the remaining 85% of the cardiac population." In Stobhill Hospital there has for some years been a special cardiac clinic for the supervision of patients with cardiac involvement who, after residence in the wards, have been found suitable for out-patient treatment. It has been a general rule, when digitalis therapy has proved necessary, to ascertain the adequate maintenance dose and to continue its administration. In some instances this treatment has been carried on for over four years. Patients attend at regular intervals, and many of them take an intelligent interest in their treatment. It was thought that these patients were excellent subjects for determining whether, in view of Gold's statement, we had been unduly liberal in dispensing digitalis.

Experimental Investigation

Having decided on this investigation, the first 20 patients who attended the clinic on and after a certain date and who were receiving a maintenance dose of digitalis were chosen. Drug therapy was immediately stopped and no medication was given until there was some indication of ill-health. These patients, all of whom had proved most co-operative, attended the clinic every week. If objective signs of heart failure such as marked increase in heart rate, visible dyspnoea, cyanosis, or oedema appeared, it was concluded that the lack of digitalis was being felt. If, however, without objective evidence, the patient complained of not feeling well, he was given tablets containing lactose in order to make quite certain that the ill-health was due to increasing cardiac decompensation and not to psychological disturbance from want of medicine. Only when objective signs of failure appeared was digitalis therapy restarted.

The 20 patients varied in age (Table I) and in duration of digitalis administration (from a few weeks to more than four years).

TABLE I.—*Age Incidence of the Patients Investigated*

Age :	20–30	31–40	41–50	51–60	61–70
Number of patients	3	5	8	1	3

There was a definite history of rheumatic fever in all but three patients, in whom arteriosclerosis with hypertension appeared to be the aetiological factor. One patient with a history of rheumatic fever had a positive Wassermann reaction, while the others had no serological or other evidence of lues. All had been in-patients of the hospital with definite signs of cardiac failure. Auricular fibrillation was present in all but two of the series. The daily maintenance dose (Table II) varied from 1/2 to 4 gr. of the powdered leaf, which is the preparation utilized for all patients attending the clinic.

TABLE II.—*Maintenance Doses of Digitalis*

Maintenance dose (gr.)	½	1	1½	2	3	4
Number of patients	3	2	2	7	4	2

Of the 20 patients 16 showed objective evidence of progressive cardiac failure before any complaint was made of ill-health or distress; in each case compensation had apparently been satisfactory the previous week. Such a rapid onset of recurrence of cardiac failure differs from the lengthy period of subjective upset which is the rule before a first attack of congestive failure.

TABLE III.—*Time Taken for Signs to Appear after Cessation of Digitalis Administration*

Case	Age	Maint. Dose (gr.)	Signs	Time in Weeks after Digitalis Stopped
1	45	2	C	5
2	38	1½	D O	8
3	41	½	D O	8
4	40	2	T	2
5	34	4	C T	11
6	49	½	D T	6
7	38	3	D T	2
8	27	4	O T	6
9	61	1½	D T	2
10	54	3	T	4
11	44	2	T	4
12	62	2	O	2
13	48	3	C D O T	5
14	47	2	T	4
15	29	3	T	3
16	24	2	D T	6

C: Cyanosis. D: Visible dyspnoea. O: Oedema. T: Marked increase in heart rate.

In this group the time taken for the signs to appear after the cessation of digitalis administration varied from two to eleven weeks, with an average of just under five (Table III).

Visible dyspnoea was the feature in 7 instances, oedema of the feet in 5, cyanosis in 3, and a marked tachycardia in 12. There was no correlation between the size of the maintenance dose and the length of the sign-free period, nor did the age or weight of the patient appear to influence the duration of the period.

The remaining 4 patients made subjective complaints—increased fatigue and a feeling of breathlessness—at an interval varying from two to six weeks after cessation of the digitalis therapy. No objective evidence to support their complaint was found in any of them. Accordingly the lactose tablets were given. In all four cases objective signs subsequently appeared—in one case in two weeks, in two cases in four weeks, and in one case in six weeks after the first subjective complaint. Visible dyspnoea was noted in all four cases, increase in heart rate in two, cyanosis in one, oedema in one, and liver enlargement in one. These signs appeared in all cases eight weeks after the digitalis had been stopped (Table IV).

TABLE IV.—*Time Taken for Appearance of (i) Symptoms and (ii) Signs after Cessation of Digitalis Administration*

Case	Age	Maint. Dose (gr.)	Signs	Time in Weeks after Digitalis Stopped	
				Subjective	Objective
17	39	1	D T	4	8
18	44	2	D C LE	6	8
19	70	1	D O T	2	8
20	50	½	D C	4	8

C: Cyanosis. D: Visible dyspnoea. LE: Liver enlargement. O: Oedema. T: Marked increase in heart rate.

In all the cases digitalis administration was restarted as soon as there was any sign of increasing cardiac decompensation. Evidence of recovery appeared within a week. This fact indicates clearly that digitalis therapy was essential for the comparative well-being of these patients.

Comment

From this small series of cases it seems reasonable to state that for patients with cardiac failure who have required digitalis for treatment in the decompensated state a maintenance dose of the drug is necessary.

I have pleasure in expressing my indebtedness to Prof. Noah Morris for his advice and assistance in the preparation of this paper, and to Dr. A. D. Briggs, medical superintendent of the hospital, for his interest.

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Medical Memoranda

Multiple Foetal Adenomata of the Thyroid

The following case on which I operated six months ago in South Africa may prove to be of some interest.

A European woman aged 30 presented herself complaining of a disfiguring swelling in the neck. On examination the right lobe of the thyroid was found uniformly much enlarged, but there were no toxic or pressure symptoms. At the patient's request operation was undertaken. The right lobe and isthmus were removed, leaving only a very small piece of tissue over the recurrent nerve. The left lobe appeared only slightly enlarged, and was not disturbed. On section the specimen was found to contain dozens of nodules each slightly larger than a pea, and these on histological examination were shown to be foetal adenomata.

I believe this case to be unusual; for foetal adenomata are as a rule single, and it must be most exceptional to find dozens present in the same gland. One wonders whether, if this case had been left alone, each of these nodules would have developed into a typical colloid adenoma. How frequently do the common cases of nodular goitre have their origin in multiple foetal adenomata?

CHARLES MACLAY, B.Sc., M.B., Ch.B.,
F.R.C.S.Eng. and Ed.

Reviews

MODERN OPERATIVE SURGERY

(Carson's) Modern Operative Surgery. Edited by G. Grey Turner, LL.D., D.Ch., M.S., F.R.C.S., F.R.A.C.S., F.A.C.S. Third Edition. Volume I. (Pp. 1,041; illustrated. 50s.) London: Cassell and Co. 1943.

Prof. Grey Turner is to be congratulated on modernizing *Modern Operative Surgery* and producing, at the height of the war, a third edition of this work; congratulations are likewise due to the publishers on the high quality of their production. The standard is one of which they might well be proud in peacetime; in wartime it is really excellent. For long this textbook of operative surgery has, in our opinion, been the best work of its kind in English, and the late H. W. Carson did surgeons a great service when, towards the close of the year 1924, he first launched it. The present edition is dedicated to the late Rutherford Morison of Newcastle-upon-Tyne, to whom the editor refers as a "great clinician, master surgeon, and inspiring teacher"—and many readers would describe the present editor in the same terms.

Vol. I deals with anaesthetics, surgical tuberculosis, malignant disease, orthopaedics, operations on joints and tendons and bones, amputations, and the surgery of the breast and thorax and gastro-intestinal tract; also the surgery of nerves, blood vessels, and the spinal cord. Twenty-six well-known authors have contributed to the third edition, but the bulk of the work has been done by Prof. Grey Turner himself, and he is responsible for the greater part of the text. The new contributors to this edition are Messrs. A. J. Gardham, V. E. Negus, L. Carnac Rivett, W. E. M. Wardill, and Lambert Rogers: the last, who has written the section on the spinal cord, has by an oversight on the part of the editor been overlooked in his prefatorial reference to his new associates. As before, the indications for operation are stressed, and the details given are those of procedures which in the experience of the particular contributor have been found by him to meet best the special indications for the operation. Illustrations are good and helpful, and the text clear and in large type—in fact, the whole format is both attractive and inviting. We find little to criticize; but Lord Moynihan, who was such a great advocate of isoperistaltic anastomoses, would have been disturbed by the legend to diagram D of Fig. 378 on page 706, which incorrectly describes his Type II operation ("Moynihan I," by the way, is called "Roux") as "retroperistaltic" and Balfour's "anastomosis" as "isoperistaltic." (Reference to vol. I of Moynihan's *Abdominal Operations*, pp. 398 and 403, shows the Moynihan II operation as isoperistaltic.)

Perhaps the keynote of this book is best indicated by the editor's comment that a considerable period must always elapse before it can be said that a given modification, however striking or spectacular, is a real improvement rather than a mere change in technique, and that in surgery there can be no finality. Here we find presentations of methods which have stood the test of time and which have, in the experienced hands of the distinguished contributors, proved their value. For these reasons this work will be an invaluable guide to the young surgeon who has to decide whether to operate, when to operate, and what to do, especially if in such a predicament he is far removed from the advice and help of colleagues. It will be equally important to candidates for the higher examinations, while as a work of reference for practitioners it should find an honoured place on their bookshelves.

MEDICAL PROBLEMS IN SOCIAL WORK

Proceedings of the National Conference of Social Work. Selected Papers. 68th Annual Conference, Atlantic City, June, 1941. (Pp. 787. $5 or 33s. 6d.) New York: Columbia University Press; London: Oxford University Press.

Social work nowadays has a vast scope. The report of the American Conference held in 1941 contained 64 papers, selected from more than 150, and is a thick crown octavo volume. Many of the contributions are linked with national defence and social security; but, as might be expected, perennial problems of health and disease were prominent. James S. Plant's paper on personality adjustment in older children states clearly some of the major problems of the adolescent—such as the conflict between responsibility and dependence, the relation between the adolescent and the adult, his adjustment of his various autonomous personalities, and his search for a loyalty—and offers useful hints on their solution. Grace L. Coyle outlines the contribution of group experience and the development of older children, and points out the significance of the present tendency to form closely knit groups of contemporaries during early and middle adolescence. Hyman Lippman, writing on case work with adolescents in conflict with authority, declares that there is no place for punishment in this work but that its success depends on the choice of workers with suitable temperament and experience. In a paper on foster parents and the agency in the adoption process Elizabeth Harral examines the relation between the applicant and the agency and its significance. The place of the specialized consultant in child welfare services is examined by Mildred Arnold. In his prescription for breaking the delinquency-crime chain James V. Bennett somewhat depreciates the institution, but William J. Ellis is convinced that it is a full partner in the chain of agencies for preventive and external treatment, and describes the variety of the services performed by American institutions for the reformation of delinquents. Winfred Overholser points out some of the means by which mental disorder in the older age groups has been successfully treated.

A vital topic of these days, health service centres in industrial areas mainly engaged on war production, is ably dealt with by Kingsley Roberts; and John C. Leukhardt, advocating better housing as a health resource, declares that it will be attained only if the housing, health, and welfare agencies co-ordinate their attack. Another phase of the medical problem created by mass migration of workers is stated by Karl L. Schaupp in describing his experiences with the Farm Security Administration in California, which had to deal with a quarter of a million migrant labourers in 1938. Naturally the volume deals mainly with American conditions, but it will be of great help to directors of socal work in this country.

CINEPLASTIC AMPUTATION STUMPS

Cineplastic Operations on Stumps of the Upper Extremity. By Rudolf Nissen, M.D., and Ernst Bergmann, M.D. (Pp. 88; illustrated. 17s. 6d.) London: William Heinemann. 1943.

Cineplastic amputation stumps were introduced as early as 1898 by Van Ghetti. Attention was drawn to the procedure by Putti and Sauerbruch towards the end of the last war. English surgeons tried out the Italian method and came to the conclusion that the cineplastic arm stump had little practical value. This adverse conclusion was based mainly on the poor wearing qualities of the motor provided by the method employed and the relatively weak control of the artificial limb which is furnished.

The volume under review is interesting in that the authors put forward a strong case for the contrary view. In a small well-illustrated monograph they give the history and theory of the subject and outline the development of their own practice, which has been based on the muscle-tunnel technique of Sauerbruch. They define cinematization as a plastic operation on the muscles of a stump, thereby creating new sources and directions of muscular energy which, by the use of additional mechanical apparatus, will permit the artificial hand to perform movements approaching the normal. The authors are satisfied that the method can be usefully applied to the upper arm and forearm but not to the lower limb.

Sections of the book deal first with physiological and anatomical aspects of the question. The complexity of muscular action necessary to attain automatic balance in any movement is made clear. The practical bearing of the degree of shortening which a muscle undergoes on contraction is considered at length. In the chapter on the selection of suitable cases emphasis is laid on the importance of the mental attitude of the patient. The authors point out that the method is best adapted to double arm amputations, or to single arm amputations when the right limb has been lost. They point out, too, that a suitable stump should be free of scar tissue and painless, and, further, that the muscle should firmly adhere to the end of the bone and not overhang it. It is recognized that the

power given by the motor provided is at best about 25% of the normal, and that therefore the procedure is unsuited for men doing heavy labour though well adapted to those involved in light hand-work.

The chapter on operative technique is clear and well illustrated. Various methods by which a muscle tunnel may be covered by skin are given in detail. The artificial limb suited for use with a motor is figured and some details are given. Drs. Nissen and Bergmann have employed the Huefner artificial hand for the purpose. No figures indicating the success or failure in their own cases are given. They state that according to the literature success has been achieved in from 68% to 10%. Their own work has been mainly carried out on civil injuries between 1927 and 1933, and on this account the quality of the stumps available was probably unusually good. Short chapters on the phalangization of forearm stumps and of the second metacarpal are given. A good bibliography of the subject is included, and this completes the practical value of a work which cannot fail to interest surgeons at the present time.

Notes on Books

The *1942 Year Book of Obstetrics and Gynecology* is dedicated to Dr. Joseph B. deLee, whose recent death removed one of the world's outstanding physicians. From 1903 to 1941 he was associated with the yearbook series, being editor of the *Year Book of Obstetrics* until 1917 and then editor of the obstetrical division of the present series until this last year. He was largely responsible for the success of this annual publication, in which his wise comments became such an outstanding feature. His co-editor of recent years, Dr. J. P. GREENHILL, has now become sole editor, and has ably maintained the running commentary. There is much to be said, however, for a joint editorial staff. It would lighten the burden, and its comments could not be interpreted as the pronouncements of a dictator, however benign. The 1942 edition is arranged like its predecessor in two sections of approximately equal size, and each is subdivided in such a way that the latest papers on any given subject can be easily and rapidly discovered. A double index of papers and authors adds greatly to the value of the edition. The practitioner who wishes to find in the shortest time the latest views on the management of a posterior position, the treatment of abortion, toxaemia of pregnancy, the use of endocrine preparations in obstetrics and gynaecology, or any one of the other thousand and one problems of general or special practice will continue to find this yearbook his useful guide. It is published in England by H. K. Lewis and Co. at 19s.

No introduction is necessary to the eighth edition of Prof. SYDNEY SMITH'S classic on medical jurisprudence. The popularity of *Forensic Medicine : A Textbook for Students and Practitioners* is shown by the demand for a new edition in wartime less than three years after the appearance of the last. The text has been revised generally, and the various changes in the law governing poisons have been noted, as have also the additions to the lists of industrial diseases for which workmen's compensation is payable and which must be notified under the Factories Act. The publishers are J. and A. Churchill, and the price is 28s.

Dr. J. VERNON BRAITHWAITE'S little book on *Infant Feeding in General Practice* (Bristol: John Wright and Sons; 7s. 6d.) appeared first in 1930, and it had the great merit that its author was himself in those days a general practitioner, fully aware of the peculiar difficulties of the work. Now in a second edition Dr. Braithwaite reveals that he has changed to the ranks of the specialist, but his book remains a most useful and thoroughly practical volume, with an account of the feeding of the premature infant added; and a new chapter on deficiency diseases and their treatment has also been found necessary. The section on vitamins has required some expansion in the light of new discoveries. This book can be thoroughly recommended to all who have the responsibility of supervising the feeding of infants.

Home Guard casualties are bound to occur, even if invasion does not happen. *Guide to First-aid Treatment of Home Guard Casualties*, by Dr. T. H. MEEK (H. K. Lewis; 4s.), is chiefly designed to show how the contents of the first-aid haversack for the Home Guard can best be employed. It is a pity that when omnopon—a dangerous drug—is mentioned its dose, except in one instance, is given as "grs." instead of "gr." The illustrations are peculiarly good throughout. The pneumatic tourniquet is pictured as being the one found in the haversack. It would be interesting to learn how this rather complicated type stands the rough wear of actual practice. For those for whom it has been prepared this booklet should be useful, but there is no index.

Preparations and Appliances

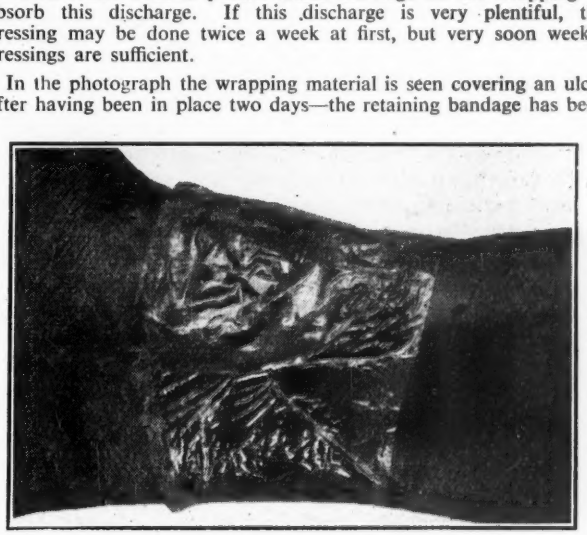
TRANSPARENT WRAPPING MATERIAL FOR DRESSING OPEN WOUNDS AND ULCERS

Dr. M. ELLIS (Colonial Medical Service, Lagos, Nigeria) writes:

Transparent wood-pulp tissue of the type used for wrapping cigarettes has been used in brain surgery as a non-irritant, inert substance to prevent adhesions between brain and dura. It was considered that the non-irritant property might be of value if this material was used as a dressing for open wounds and ulcers. Thanks to the co-operation of our local Forces canteen, we obtained a supply of undamaged wrappings removed with care from packets of cigarettes sold there. We found that these pieces of tissue could be sterilized without damage by boiling in the standard ward sterilizer.

Routine of Dressing.—The wound or ulcer is cleaned or prepared in the usual manner as if a gauze or lint dressing were to be applied. We use either sulphanilamide powder or urea crystals actually in the wound. The wound is then covered directly with a piece of transparent tissue of appropriate size and this is secured at the edges by a bandage or strapping. The wound can be inspected at any time through the transparent wrapping and not uncovered until it is desired to change it. We have found that the wrapping can remain in place without tearing for about one week, and in the normal case we change dressings weekly. We have also found that the discharge from ulcers and wounds is very much less than with ordinary gauze dressings; in most cases the sealing of the wound by the transparent tissue contains this diminished discharge without trouble until the dressing is renewed at the end of a week. Some sloughing ulcers, however, still have enough discharge to exude beyond the wrapping. In these cases wool is placed round the edge of the wrapping to absorb this discharge. If this discharge is very plentiful, the dressing may be done twice a week at first, but very soon weekly dressings are sufficient.

In the photograph the wrapping material is seen covering an ulcer after having been in place two days—the retaining bandage has been



removed. It will be observed that the transparent tissue has become slightly adherent to the skin around. I am indebted to Mr. Bird of the British American Tobacco Company for the following information. The transparent wrapping in use in the factory of the B.A.T. in Nigeria has the trade name of "rayophane" and possesses the property of sealing by the application of heat: the wrappings around the cigarette packets are sealed by heat. Although body temperature does not approach the temperature used for sealing in the factory, the constant warmth of the body is apparently enough to seal the tissue lightly to the skin and assist in keeping it in place. If the pressure of the discharge becomes excessive, it has no difficulty in breaking the seal and escaping into the wool. Through the courtesy of the B.A.T. we have now ample supplies of "rayophane," which they give to us from the scrap obtained from the factory, and this dressing is used as a routine both in the in-patient and out-patient departments.

To summarize the advantages: (1) The dressing is non-irritant and simple to apply; (2) the wound can be inspected without uncovering at any time; (3) the amount of discharge is much reduced—a possible corollary to this is that the smell in the ulcer wards is very much reduced now; (4) a tremendous saving of dressing material; (5) we believe that the rate of healing is increased by the dressing.

I am indebted to the Hon. the Director of Medical Services, Nigeria, for permission to publish.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JUNE 5 1943

LIVER EXTRACTS AND THEIR BIOLOGICAL EFFECTS

Since the discovery of the therapeutic effect of liver in pernicious anaemia it has been the aim of the pharmacologist to produce ever more concentrated extracts with the ultimate view of synthesizing the active principle. Clinicians, on the other hand, always on guard that the chemist in his rejection of unnecessary molecules should not render his remedy less potent, suspect that preparations become less active when they exceed a certain degree of concentration. The work of Subbarow and Jackson[1] suggests that the therapeutic potency of liver extract depends upon one principal factor which, if given in sufficient amount, can alone bring about a remission, and several subsidiary factors which, themselves without anti-anaemic effect, yet intensify the therapeutic efficacy of the extract. A recently published investigation[2] from Copenhagen throws some light on these subsidiary factors and their relation to the anti-anaemic principle. Barfred began his research in order to elucidate the causes of the disagreeable effects so often observed after injections of liver extract. He found that these reactions occurred especially with the use of preparations containing a relatively high amount of dry substance. He showed also that extracts rich in dry substance are highly toxic to mice, and that by employing a preparation 1 c.cm. of which was not lethal to mice it was possible to avoid most of the unpleasant reactions in patients with pernicious anaemia. This led to a study of other biological effects of liver extracts, with interesting results. Confirming and amplifying the work of previous workers, Barfred showed that certain liver preparations were capable (1) of increasing the volume and HCl content of the gastric secretion of normal and achlorhydric subjects, (2) of producing positive intracutaneous reactions, and (3) of inducing leucocytosis. The factors responsible for these effects have certain features in common, such as solubility in butyl alcohol and resistance to boiling and action of erepsin. An attempt was made to identify the substances responsible for these biological effects. Histamine, acetylcholine, adenosine, nicotinic acid, and other members of the vitamin B complex were studied, and it was shown that not one of these substances taken singly could produce all the subsidiary effects of liver extracts, although it was possible that a combination of the first four might. It is evident, however, that the subsidiary actions of liver extracts are not peculiar to this organ, as an extract of the thymus gland prepared in the same way produced the same results without any influence on the course of pernicious anaemia. Of interest for the future synthesis of the anti-anaemic principle is the finding that prolonged treatment of potent liver extracts by erepsin did not diminish the anti-anaemic potency, suggesting that the principle is not a simple polypeptide.

The subsidiary substances found in the butyl alcohol solution have no effect on pernicious anaemia, but by the use of the double reticulocyte reaction introduced by Minot and Castle it was shown that they increased the response obtained from the use of the residue left after treatment with butyl alcohol. If by further concentration of an active liver extract the stimulating effect of HCl secretion was abolished a reduction of the anti-anaemic effect was invariably found. This indicates a method whereby the limit to concentration can readily be determined. It also has led Barfred to put forward the interesting hypothesis that the gastric factor may be of importance in stimulating the stomach to produce the intrinsic anti-anaemic factor. With highly purified extracts containing but little of the subsidiary substances the therapeutic effect would be due merely to the haemopoietic principle contained in the extract. With less concentrated preparations, on the other hand, the patient would derive benefit not only from preformed anti-anaemic substance but also from the extra amount of intrinsic factor secreted by the stomach under the influence of the gastric factor contained in the extract.

The painstaking investigations of Barfred, while of considerable theoretical interest, may lead to results of some immediate practical value in providing a method for determining the optimal limits of concentration of a liver extract. It is obvious that all extracts should have some stimulating effect on the gastric secretion, thus limiting the degree of concentration upwards. At the same time they should be so purified that a dose of 1 c.cm. is not lethal to mice, thus ensuring that unpleasant reactions in the human subject are reduced to a minimum.

[1] *J. clin. Invest.*, 1937, **16**, 573.
[2] *Acta med. scand.*, 1942, Suppl. **131**, 1.

SOME PROBLEMS OF MEDICAL EDUCATION

Last year, following a request from the Interdepartmental Committee on Medical Schools, the Council of the British Medical Association set up a compact committee of fourteen to prepare evidence, and the result, under the chairmanship of Prof. Sydney Smith of Edinburgh, has been the memorandum printed at page 702. It is a clear and concise report, moderate and constructive in tone. While covering the five specific points referred to it, the committee goes into some broader considerations, recognizing that, although the organization of medical schools and of the facilities for clinical teaching poses problems of its own, the matter should be studied not as a thing apart but in relation to the whole question of the future organization of medical services. The problem is one not merely of devising methods of linking the present voluntary and local authority hospitals for the purposes of medical education, but of considering the place of the teaching hospital in the future hospital service and the method of associating other types of hospital and medical institutions with the teaching hospital. The method of recruitment to the profession and the needs of practitioners of the future, whose conditions of work may well differ from those we know to-day, must also be kept in mind.

Starting with the axiom that a medical teaching centre should be one from which medical education, both undergraduate and postgraduate, and research are organized for an area, the committee lays down general criteria to which the centre must conform if it is to fulfil its important functions. This conception of a medical teaching centre is elaborated under several subheadings. The memorandum next sets out desiderata in respect of the teaching staff, their selection, appointment, and status, and then passes to the question of how far general practitioners might assist in the training of medical students. Two frequent complaints are succinctly noted: one is that the future family doctor is not given knowledge that he will find to be essential in his daily practice; the other is that the newly qualified man may enter general practice without any previous instruction in his ethical relationships with his patients and his colleagues or in his rights and obligations under the Health

Insurance and other Acts of Parliament. To meet these criticisms the committee, aligning itself with earlier declarations by the B.M.A., holds that medical education would be assisted if suitable general practitioners were invited to advise on, and be associated with, the training of the student. Further than this, medical faculties or medical school committees might with advantage include general practitioners in their membership to advise on the curriculum so far as it relates to matters of importance in general practice, and to ensure that adequate attention is given to them. With regard to teaching methods in general, the memorandum stresses the need for relating the medical curriculum to the organization and requirements of medical practice. Changes are in the air, and in many respects the present methods of teaching will not produce doctors competent to reach the standard of practice that will be demanded in the future. This leads to the point that students should be taught the fundamental principles of health and disease rather than the diagnosis and treatment of separate diseases. Many doctors to-day find difficulty in keeping abreast of modern medical progress because they did not have a sufficient grounding in their student days. The function of the future practitioner in maintaining health as distinct from treating disease should also be provided for in the curriculum. Again, for most students the time occupied in watching major operations could be spent more profitably in acquiring under supervision practical experience in those surgical procedures that are likely to fall to the lot of the general practitioner.

To many people in 1934 there was something novel in the recommendation in the B.M.A. Report on Medical Education that every student should be required to spend some time in practice under supervision before being allowed to embark on independent practice. The idea has made much progress since then, and the present memorandum, noting the movement of opinion, discusses two different views on how to achieve this end. It agrees with the Medical Planning Commission that the period spent in practice under supervision should occur after the final examinations have been passed but before the licence to practice independently is granted; it should be essentially a time of instruction combined with some responsibility, but no formal examination should be required at the end of the year. (The General Medical Council, while favouring this proposal in the public interest, has pointed out to the Interdepartmental Committee that it may involve amendment of the Medical Acts.) Then follow two sections on postgraduate courses—those for general practitioners and those in special subjects. It is recommended that, in a national scheme of medical service, periodical "refresher" courses for the G.P. should be compulsory, and that steps should be taken to satisfy varied wants by making use of both voluntary and local authority hospital resources on a systematic basis, the instruction being given by teachers familiar with the G.P.'s difficulties and in sympathy with his outlook. The memorandum closes with a brief glance into the future of medical practice, both general and special; a tentative estimate of the number of general practitioners who might be needed after the war; and a note on the selection of medical students—the human material from which the future doctors are to be fashioned. Two main points are put forward: one is that better care should be taken by the medical schools to exclude from our profession men and women who, though able to pass the examinations, have not the aptitude, character, or staying power needed for the arduous and responsible duties of a medical practitioner. The other is that there should be a recognized arrangement for picking students, with the object of recruiting to the profession any boy or girl, from whatever section of the community, who shows a natural inclination for medicine and who has the character, health, and intelligence that a successful medical career demands. As a natural corollary to this comes the final recommendation that funds be made available to help selected candidates who could not otherwise join our ranks.

PLAGUE ABROAD

We have Defoe and the sites of plague pits to remind us that infection with the *Pasteurella pestis* was once one of the perils of our land. While we remain mercifully free from the pest, it is well to recall that it is a public health problem in many parts of the Empire, and also in America. Reports for January–October, 1942,[1] showed cases of plague in Basutoland (10), Kenya (703), Uganda (338), Egypt (3), Madagascar (92), Morocco (349), Union of South Africa (68), India (854), Palestine (5), Azores (1), Argentina (25), Brazil (9), Chile (1), Peru (102), and in four provinces of China. Two young boys from different localities in California died from the disease in 1941.[2] Fortunately the West Indies have been free since 1921. It is evident, however, that plague is one of the main health problems of some of our colonies. From February, 1941, to February, 1942, 547 cases of plague (416 bubonic) were admitted to the two civil hospitals in Nairobi,[3] with 354 deaths. It is the native population which has been involved in nearly every instance. Outbreaks of plague occur from time to time in the Union of South Africa. In 1941 Gale[4] reported an outbreak of 37 cases in a native reserve: all but one were pneumonic and 36 fatal. The origin of this outbreak was thought to be the springhare (*Pedetes caffer*) or the multi-mammate mouse (*Mastomys coucha*). Davis[5] reported plague to be enzootic in the rodent population over a large area of the Union. The main source of infection for man was the multi-mammate mouse, which occupies the abandoned nests of the gerbilles, these being the main sylvatic reservoirs of the disease. The mice enter human dwellings and form the link between gerbilles and man. More recently *R. rattus* has been the source, and large numbers have died without traceable infection in the field rodents. Kamal[6] has pointed out that plague is endemic in Egyptian towns and villages.

In the Americas the disease exists chiefly as an ever-present potential danger in the form of sylvatic plague. As a cause of death plague is unimportant on the North American continent. Meyer[7] states that only 17 cases have been recognized in the period 1930-40, but the disease is enzootic in the rodent population over at least 12 western States and at least one Province in Canada. In 1941 infected fleas were found for the first time on ground-squirrels in North Dakota. This is the furthest east that the infection has been found in wild rodents or their ectoparasites and was only 6 miles south of the Canadian border. There is evidence that distribution of the infection is widening and nearing the rat-infested cities and towns of the Mississippi valley. It is also possible that the infection may again invade the Pacific coast cities and military encampments. The list of wild rodents that harbour infection is too long to enumerate and is included in Meyer's excellent lecture on the ecology of plague.[7] The movement of large numbers of military personnel into areas where plague is known to exist has created greater interest in the suppression of this infection. What is wanted is something that will kill the flea as well as the rodent. Methyl bromide and carbon disulphide appear to be the

[1] *Publ. Hlth. Rep.*, Wash., 1942, **57**, 2000.
[2] Ibid., p. 903.
[3] *E. Afr. med. J.*, 1942, **19**, 3.
[4] *S. Afr. med. J.*, 1941, **15**, 369.
[5] *S. Afr. J. Sci.*, 1939, **36**, 438.
[6] *J. Egypt. publ. Hlth. Ass.*, 1941, **16**, 1.
[7] *Medicine*, 1942, **21**, 143

chemicals of choice.[8] The former is the most efficient and is non-explosive, but it is expensive and more toxic for man. For merely maintaining a ground-squirrel-free belt carbon disulphide is efficient and reasonably economical, but some fleas may escape destruction. Fortunately the other factors which seem necessary to initiate human infection seldom occur in the U.S.A.

In the Far East, Madagascar, East and South Africa, and elsewhere a number of prophylactic vaccines have been tried. The most satisfactory appear to be those made from an avirulent strain first discovered and used by Otten in Java.[9] In large-scale usage this type of vaccine has apparently reduced the mortality rate by almost 20%. Many drugs have been tried in treatment in the past, but with little effect. However, the sulphonamides have improved the prognosis. Plum[3] in Nairobi found that sulphapyridine in large and frequent doses given within two days of the onset of illness caused a fall in the mortality rate of bubonic cases. Wagle and his colleagues,[10] on the other hand, found immune serum as effective as sulphapyridine or sulphathiazole. As in many other bacterial infections, these drugs, if used early enough in large doses, can reduce to as little as 12% in bubonic plague a mortality rate which ranges between 50 and 100% in different epidemics (1,541 deaths in 1,558 unvaccinated cases reported in Java in 1939). A full review of the chemotherapy of plague was given in an annotation about 18 months ago.[11]

REGIONAL ANAESTHESIA

Even if the local anaesthetic properties of cocaine had been discovered before the general anaesthetic properties of ether, one may assume that unconsciousness during surgical operations would have been welcomed for its own sake. Anaesthesia had become widespread long before the mortality of operations was being lowered by antiseptics and surgical cleanliness. The public, however, still associated surgical operations with pain and the likelihood of death, with at best a prolonged convalescence. It is little wonder, then, that to-day, barely two generations later, the fear of operating theatres is so prevalent, and patients so often spontaneously ask for sleep when the question of regional anaesthesia is raised. British anaesthetists have subconsciously understood their patients in this matter, and have rarely been guilty of forcing an unwilling patient to remain awake. This was a common sight in Continental operating theatres, for, although the surgeons abroad developed the regional anaesthetic technique to a high degree, they ignored the minds of their patients. Successful regional anaesthesia must wed these two aspects. The public fear of the operating room and everything associated with it must be gradually eliminated by education and propaganda. Anaesthetists must gain anatomical knowledge and technical skill, while those whose hands cannot be gentle and whose tongues must wag while they work should be discouraged from surgery under regional anaesthesia. At the moment, when the patient desires to be asleep, regional anaesthesia should be combined with light general anaesthesia, and it will still be of the utmost value in providing muscular relaxation that could have been produced only by the deepest of general anaesthesia, and in preventing stimuli from the operation area reaching the cortex.

In a comparison of regional with general anaesthesia the local anaesthetic agent must not be overlooked as a source of systemic poisoning. The last fifty years have seen a constant search for a local anaesthetic drug which, while giving effective anaesthesia, is relatively non-toxic. Procaine (novocain) holds the field to-day, but active research is needed even in connexion with this, because large amounts of the order of 2 grammes and more are often being used, and we have little knowledge concerning the relative rates of its absorption and excretion and the relation of these to the concentration and volume of the drug solution used. In the search for drugs having a prolonged action, new additions such as nupercaine, and recently amethocaine (also known as decicain, pantocaine, and anethaine), have been made. Unfortunately, these drugs are several times more toxic even than cocaine, and this is offset only by the extreme dilutions which are effective. No one who contemplates using these very potent drugs should fail to make himself familiar with their pharmacology and toxicology. Deaths have recently occurred in this country and abroad through using amethocaine in too high concentration,[1 2] while convulsions from both this drug and nupercaine have been reported.[3] It should be borne in mind that their main claim over procaine is the longer operating time they provide, and unless the time factor is important procaine should still be used. Regional anaesthesia holds tremendous promise, both for the relief of pain during surgery and for diagnosis and therapeusis, and it will be to the ultimate benefit of everyone that its study is being taken up by anaesthetists rather than as a minor side-line by surgeons.

A HOUSING INQUIRY

"Questioning," said the great Dr. Johnson, "is not a mode of conversation among gentlemen." Nevertheless, in recent times the questionary has become a dissecting tool of sociology, dividing asunder the joints and marrow of our communal life. Sometimes it has been misused; for example, one of the bodies—not Mass-Observation—in trying to discover people's housing preferences, framed for the unfortunate householder a questionary running to nearly 200 questions, whereas it is the experience of interviewers that attention flags after ten or fifteen. Sometimes biased questions are put. If people are asked whether they would like a refrigerator or a communal laundry or swimming pool the result is to suggest a want rather than to elicit an opinion. Mass-Observation, which is a fact-finding body, has worked out its own technique, endeavouring to collect and collate the points which the people themselves raise, irrespective of outside suggestion. In a recent survey[4] it covers four different groups of housing areas —old towns, garden cities, municipal housing estates, and modern working-class flats. The people give their preferences for suburb or town, house or flat, owned or rented dwelling, and discuss housing arrangements down to the shape of door knobs and gate posts and the virtues or vices of linoleum. In view of the millions of houses which will presently have to be built the inquiry is of real value, though not perhaps as valuable as might be expected. The investigators set out to discover the "dream home" of the people, but the fact is that a very large number of people have no dreams—in other words, no capacity for making mental pictures of what they would like. They take what offers and are only vaguely aware of house satisfactions and frustrations. So far as it can be summarized, the majority want a small suburban house or bungalow, not a flat; it should have modern labour-saving devices, hot and cold laid on to a sink in the scullery, the water-closet in a separate compartment from the bathroom, small windows,

8 *Amer. J. Hyg.*, 1938, **28**, 469.
9 *Meded. Dienst. d. Volksgezondheid in Nederl.-Indië*, 1941, **30**, 61.
10 *Indian med. Gaz.*, 1941, **76**, 29.
11 *British Medical Journal*, 1941, **2**, 621.

1 Schoen, F., *Wien. klin. Wschr.*, 1939, **52**, 505.
2 Phillips *et al.*, *Anesth. & Analges.*, 1941, **20**, 233.
3 Organe, G., *Lancet*, 1942, **2**, 33.
4 *People's Homes.* A Report prepared by Mass-Observation. London: John Murray. 1943. (10s.)

built-in cupboards, coal fires for warming, electric points in most rooms, and a garden. *People's Homes* leaves the impression of a long-suffering population of housewives, aware of something better than they have got, but not very hopeful about it in their own lives or clamorous for it. The planners of the future and those who direct housing policy, however, to all of whom this work should be a book of reference, will do well not to take advantage of that fact.

THE PRACTITIONER AS TEACHER

In a paper read to the Health Conference of the New York Academy of Medicine, and now reprinted,[1] Prof. Allen Freeman of the chair of public health at Johns Hopkins University draws attention to the part which, in his view, should be played by private doctors as instructors in the prevention of disease. The private practitioner, he observes, has unique, but hitherto unutilized, opportunities of implanting right ideas on preventive medicine in the minds of the people with whom he comes in contact on his daily round. The principal reason for this failure to seize the occasion is that, to-day in the United States, few even of recent graduates have, as students of medicine, received effective teaching in prevention, while the more senior practitioners, owing to the scarcity of postgraduate courses in the subject, remain as uninformed about it as they were in their student days. What is required is to ensure the better acquaintance of the otherwise duly qualified practitioner with the principles of prevention, in order that, so equipped, he may be more competent to hand on to his patients, and through them to the local public, the essentials of prevention and other aids to health. Medical schools should admit preventive medicine to first-line rank in their curricula, and should establish postgraduate courses in the subject. Such measures will point the young graduate to the preventive field, his absence from which is to be regarded as one of the great tragedies of present-day medicine. But Prof. Freeman is not without hope. Some progress is being made, for, as he tells us, "in many American medical schools the professor of preventive medicine is coming to be regarded as a really respectable member of the faculty."

A BRITISH HOSPITAL FOR STALINGRAD

We print on another page an appeal, signed by the Archbishop of Canterbury, Lord Horder, Sir Gowland Hopkins, and other distinguished men and women, for funds to build a new hospital at Stalingrad. This hospital is intended to be "a permanent expression of the British people's gratitude to the defenders of Stalingrad, who have made such a great contribution to the final victory of the United Nations." This is a project which will, we are confident, receive the warm and whole-hearted support of British doctors, and it would be a happy omen for the success of that professional collaboration between the two countries which it is hoped will develop freely in the coming years if medical men and women in this country were collectively to make a really large financial contribution to the British hospital in Stalingrad. The Joint Committee for Soviet Aid is appealing for £75,000 by June 22. If everyone on the *Medical Register* were to contribute one guinea this aim would almost be achieved without anyone else's assistance. It is obvious that very much more than £75,000 will be needed to complete a hospital which will be a fitting memorial to the defenders of Stalingrad and at the same time a hospital that can play a large part in supplying the medical and surgical needs of the future population of this historic city. Whatever their personal circumstances at the moment are, British doctors, we are sure, will not be behind other sections of the community in giving generously. Cheques should be made payable to the Joint Committee for Soviet Aid, crossed "Stalingrad Hospital Fund," and sent to the Organizing Secretary of the Joint Committee, 171, St. Stephen's House, Westminster, S.W.1.

[1] *A Venture in Public Health Integration.* Oxford University Press. (6s. 6d.)

DESOXYCORTICOSTERONE ACETATE AND NATURAL EXTRACTS OF SUPRARENAL CORTEX

In March the Medical Research Council issued a statement by its Therapeutic Requirements Committee drawing attention to the need for strict economy in the use of desoxycorticosterone acetate and urging practitioners not to prescribe it for any patients except those suffering from Addison's disease. Since the publication of that statement further information regarding the stocks of desoxycorticosterone acetate held by individual firms has become available to the Therapeutic Requirements Committee, and it now appears that the need for conserving supplies in the interests of patients suffering from Addison's disease is not so pressing as was thought. Some of the difficulties experienced in obtaining supplies appear to be due to patent rights and the use of branded names, and it has been suggested that the drug should always be prescribed as desoxycorticosterone acetate. The committee desires to repeat that there is no evidence that this drug is essential for any purpose except the maintenance treatment of Addison's disease, and therefore proposes to continue the classification "B" for it. Natural extracts of suprarenal cortex are indispensable in the treatment of Addison's disease, particularly in the acuter phases, and they probably have a wider field of usefulness than desoxycorticosterone acetate. Adequate supplies of natural extracts of suprarenal cortex are available from glands collected in this country, and the committee therefore proposes to continue to classify them "A." Practitioners who have difficulty in obtaining any of these drugs should communicate with the Director of Medical Supplies, Ministry of Supply, Portland House, Tothill Street, S.W.1.

SURGICAL MISSION TO RUSSIA

At the close of the Hunterian Oration before the Royal College of Surgeons of England on May 26, the President, Sir Alfred Webb-Johnson, admitted two new Honorary Fellows: Col. Elliott C. Cutler, Moseley Professor of Surgery at Harvard University and Chief Surgical Consultant to the United States Army; and Dr. W. G. Penfield, Professor of Neurology and Neurosurgery at McGill University, Montreal. These two surgeons, with Col. Loyal Davis of the U.S. Army, will be taking part in the forthcoming Anglo-American Surgical Mission to Russia. The British section, which is proceeding under the joint auspices of the British Council and the Medical Research Council, will consist of Surg. Rear-Adml. G. Gordon-Taylor, Major-Gen. D. C. Monro, Professor of Military Surgery at the R.A.M. College, Millbank, Mr. E. Rock Carling, and Mr. R. Watson-Jones. The aims of the Mission are to study the results of war surgery in Russia and to explore the possibility of extending medical relationships between the two countries. During the visit to the U.S.S.R. Surg. Rear-Adml. Gordon-Taylor, the senior Vice-President of the Royal College of Surgeons, will admit to the Honorary Fellowship two Russian surgeons: Dr. Nicolai N. Burdenko, Director of the Operative Surgery Institute, Moscow University, and Surgeon-in-Chief to the Red Army; and Dr. Sergei S. Yudin of the Sklifassovski Hospital for Traumatic Diseases, Moscow. The work of the Sklifassovski Hospital was described in an article in this *Journal* eight years ago (1935, **2**, 1118) by Mr. George Sacks, who also gave an account of the work then being done by Prof. Burdenko at the Neurosurgical Hospital.

INTERDEPARTMENTAL COMMITTEE ON MEDICAL SCHOOLS

MEMORANDUM OF EVIDENCE BY THE B.M.A.

The British Medical Association has been invited to submit evidence to the Interdepartmental Committee on Medical Schools and to include therein its views on the following topics:

(1) The desirability and method of linking voluntary and local authority hospitals of various types for the purpose of medical education, and in this connexion the selection, appointment, and payment of the medical staff of hospitals so linked.

(2) The extent to which the teachers in the clinical period should be appointed on a salaried basis, whole- or part-time.

(3) The extent to which general practitioners might assist in the training of medical students.

(4) The facilities which are desirable for (i) house appointments for recently qualified graduates, (ii) refresher courses for general practitioners, (iii) postgraduate students specializing in a particular branch of medicine.

(5) The number of general practitioners who may be needed after the war.

The Council appointed a committee, composed of the following members, to prepare the evidence desired:

Sydney Smith, M.D., F.R.C.P.Ed., D.P.H., Edinburgh, *Chairman*, Regius Professor of Forensic Medicine and Dean of Faculty of Medicine, University of Edinburgh.

H. S. Souttar, M.Ch., F.R.C.S., London, Chairman of Council, B.M.A.

Peter Macdonald, M.D., C.M., York, Chairman of Representative Body, B.M.A.

J. W. Bone, M.D., C.M., Luton, Treasurer, B.M.A.

J. A. Charles, M.D., F.R.C.P., D.P.H., Newcastle-upon-Tyne, Medical Officer of Health, City and County of Newcastle-upon-Tyne.

Henry Cohen, M.D., F.R.C.P., Liverpool, Professor of Medicine, University of Liverpool.

V. Zachary Cope, M.S., F.R.C.S., London, Surgeon, St. Mary's Hospital; Senior Surgeon, Bolingbroke Hospital.

Anthony Feiling, M.D., F.R.C.P., London, Physician, St. George's Hospital and Royal National Orthopaedic Hospital.

F. Gray, M.B., B.Ch., London, General Practitioner.

R. L. Newell, M.D., F.R.C.S., Manchester, Assistant Surgeon, Manchester Royal Infirmary; Lecturer in Surgery, University of Manchester.

W. J. Pearson, M.D., F.R.C.P., London, Physician i/c Children's Dept., University College Hospital; Physician, Hospital for Sick Children, Great Ormond Street.

R. M. F. Picken, M.B., Ch.B., D.P.H., Cardiff, Mansel Talbot Professor of Preventive Medicine, Welsh National School of Medicine.

A. Talbot Rogers, M.B., B.S., Bromley, Kent, General Practitioner.

I. R. Clout, London, Representative of British Medical Students' Association.

Although the organization of medical schools and of the facilities for clinical teaching presents problems of its own, the subject should be considered not in isolation but in relation to the whole question of the future of the organization of medical services. It is likely, for instance, that voluntary and local authority hospitals may not continue to function as separate systems in their present form but may both be parts of a co-ordinated regionalized medical service. The problem is not merely one of devising methods of linking the present voluntary and local authority hospitals for the purposes of medical education, but of considering the place of the teaching hospital in the future hospital service and the method of associating other types of hospital and medical institutions with the teaching hospital. The method of recruiting entrants to the profession and the needs of the practitioner of the future, whose conditions of work may differ from those obtaining at present, must also be considered.

Conception of a Medical Teaching Centre

A medical teaching centre should be a centre from which medical education, both undergraduate and postgraduate, and research are organized for an area. It should consist of a university medical school and a teaching hospital or hospitals in close proximity, with organized associations between the parent hospital and other hospitals and medical services in the district. Patients should be drawn from a wide area, and the quality of the treatment given should be of the very highest standard so that it may guide and influence the whole of the hospital service in the region.

If a teaching centre is efficiently to fulfil its important functions it must conform to certain general criteria. These should include the following:

(1) The teaching, wherever given, should be organized as a whole and all the parts at all stages should be co-ordinated.

(2) The teaching hospital or group of hospitals should be adequate in size and should contain an adequate and varied supply of teaching material and adequate facilities for teaching purposes.

(3) Clinical instruction, especially in the earlier stages of the course, should, so far as possible, be concentrated in, or in close proximity to, the parent hospital.

(4) The teaching staff, whether at the parent hospital or at associated institutions, should be suitably qualified, sufficient in numbers, and approved for the purpose.

(5) Medical teachers should have clinical control of the beds utilized for teaching, whether at the parent hospital or at an associated hospital.

(6) Admissions should be selective and closely related to the needs of teaching and research.

(7) In all hospitals, whether voluntary or local authority, which are used for teaching purposes there should be a medical board representative of the medical staff to advise on all matters relating to the use of the hospital for teaching purposes.

(8) Adequate residential accommodation should be available for students.

(9) There should be ample provision for postgraduate study and research.

Organization of Teaching.—While the general organization of the teaching is the function of the faculty or other governing body of the medical school, the detailed arrangements for the teaching of the students throughout the clinical years of the course should be in the hands of a responsible member, preferably whole-time, of the staff of the medical school. He should act as an officer of the medical faculty, and among his responsibilities should be the making of arrangements with other hospitals, including local authority hospitals, in the area for the teaching which for some reason cannot be given in the parent hospital. When the facilities of a local authority hospital are utilized for teaching purposes to supplement the work of the parent hospital, the former should be regarded as an integral part of the teaching scheme and not as a mere adjunct. It is to be hoped that when the regionalization of the hospital services is effected the conditions of admission and of medical staffing will be the same in hospitals of all types and that many of the difficulties at present involved in the use of the local authority hospitals for teaching purposes will consequently disappear. There is no reason why, in an area otherwise suitable to become a teaching centre, a local authority hospital which conforms to the requisite standards in buildings, facilities, staffing, and organization should not become recognized as a parent teaching hospital.

Accommodation.—The teaching hospital, whether it be a single hospital or a group of separate units, should be adequate in size to assure full facilities for teaching in the different branches of medicine and surgery. The bed accommodation should be sufficient to enable each student during his periods of dressership and clerkship to be given four or five beds to supervise. It is suggested that in the case of a medical school with 90 to 100 entrants annually there should be not fewer than 900 to 1,000 beds available in the teaching centre for teaching purposes in all branches. Every effort should be made to provide accommodation to enable students to spend a period in residence as clerks and dressers. The present voluntary hospital accommodation is insufficient to afford this advantage, and the Association suggests that local authority hospitals might be used to provide additional opportunities for resident instruction. Although some instruction is already given in local authority hospitals it usually takes the form of demonstrations which the student attends as a visitor; it would be better if senior students could spend a period in residence there and be given the supervision of beds. They should not, however, be regarded as replacing house-physicians and house-surgeons. All resident students should be provided with accommodation for study purposes.

Concentration of Teaching.—It is desirable that instruction, especially in the earlier stages of the course, should be concentrated so far as possible in close proximity to the medical school and the parent hospital. At present much time is wasted because the places of instruction are scattered. If it should be necessary for teachers and students to travel far from the parent hospital means of transport should be provided.

Supply of Material.—It is important that the student should see as large a variety of types of case as possible. Teaching voluntary hospitals do not always fulfil this criterion, inasmuch as they tend to accumulate an undue proportion of the rarer types of disease. While such types are often suitable as the basis of the teaching of the fundamentals of medicine, the teaching centre should also afford a sufficiency of those types of ordinary disease which are more likely to confront the practitioner in his daily work. The use of the resources of local authority hospitals would help to remedy the present defect. In an ideal arrangement some of all types of cases would be sent to the teaching centres, including tuberculosis and other diseases for the treatment of which the State undertakes responsibility.

Facilities should also be available for the student to receive practical instruction in the recognition of the normal in the child and the adult and of the early manifestations of disease, in minor illness, in industrial illness, in chronic illness, and in the social circumstances underlying disease. As full advantage as possible should be taken of the opportunities for teaching afforded by the out-patient departments.

Teaching Staff

The teaching staff, whether at the parent hospital or at associated institutions, should be suitably qualified, sufficient in numbers, and approved for the purpose. If a local authority hospital is used wholly or partly for teaching, members of its staff employed in teaching should be approved for that purpose. Members of the parent hospital teaching staff who are allocated to teach in a local authority hospital should be appointed to the staff of that hospital.

Selection and Appointment.—All medical teachers should be selected from the widest possible field of candidates. Appointments to university chairs in clinical subjects should be made by the university. All clinical teachers should be appointed on the recommendation of an advisory appointments board, which should contain a substantial proportion of university representatives. A unified system of appointments through such a board to all senior clinical posts, whole-time or part-time, in the hospitals linked for teaching purposes would afford the best means of ensuring that some or all of their holders could be approved as teachers. If such unification cannot be attained the advisory appointments board should also consider applications for approval as teachers from members of staffs of hospitals utilized for teaching in association with the parent hospital. In making appointments to teaching hospitals the paramount consideration should be the candidate's ability to teach, practise, and advance the science and art of medicine.

Types of Appointment.—Clinical teachers may be appointed on a whole-time or a part-time basis. All should receive remuneration for their services as teachers. In each teaching centre there should be three types of whole-time salaried posts:

(1) The first type should offer a purely academic career in medicine and the holder should be primarily engaged in research work. The number of such posts in any one hospital should be very small.

(2) The second type should be that of a professor of a branch of medicine or surgery normally appointed on a whole-time salaried basis. Before appointment he should have obtained ample experience in his branch, both inside and outside hospital. He should devote all his time to his hospital duties, and if he receives fees for consultative work he should return them to his employing authority.

(3) The junior teaching staff, such as registrars and clinical tutors, should hold whole-time salaried posts.

The members of the teaching staff who do not fall into the above-mentioned categories should be employed on a part-time salaried basis with the right to private practice.

Status of Teachers.—It is of fundamental importance that medical teachers should have complete freedom in the control of the beds in their charge and in their methods of teaching and treatment. When beds or wards in a local authority hospital are used for teaching purposes the same principles should apply. The teacher should have full clinical charge of the beds concerned, subject only to the general administrative supervision of the medical superintendent. It is believed that in practice no difficulty would arise provided there is good will on both sides. As is suggested above, it is desirable that a member of the staff of a parent hospital allocated to teach in a local authority hospital should be appointed a member of the staff of that hospital in order to give him a definite status.

General Practitioners.—Complaint is frequently made by general practitioners that they did not receive as students the knowledge that they later found to be essential in their daily practice. It is said, for example, that the teaching given in children's illnesses, nutrition and dietetics, infectious diseases, and psychoneuroses is often quite inadequate. In some schools the student is not given any opportunity of mastering the technique of such surgical procedures as a general practitioner may properly be called upon to undertake. Another complaint is that the newly qualified practitioner entering general practice finds that he has been given no instruction in his ethical relationships with his patients and his colleagues, and in his rights and obligations under the National Health Insurance Acts. The Association suggests that medical education would be assisted if suitable general practitioners were invited to advise on and be associated with the training of the student. Medical faculties or medical school committees might with advantage include one or more general practitioners in their membership. The function of these practitioners would be to advise on the curriculum so far as it related to subjects of particular importance in general practice and to ensure that adequate attention was given to them. A similar representation of general practitioners should also be included in the staff committees of all hospitals associated with the teaching of students. In the actual teaching general practitioners could render valuable help by giving instruction in medical ethics, the National Health Insurance Acts, and medical organization, and, under present conditions, by giving practical advice on the finance and equipment of a general practice.

Teaching Methods

Although it is understood that the Interdepartmental Committee is not considering in any detail the methods of medical teaching and the content of the syllabus, the Association desires to emphasize the need for relating the medical curriculum to the organization and requirements of medical practice. Great changes will probably take place in medical organization and practice, and the future provision for medical education must take account of these changes. They may be expected to include the co-operation of general practitioners in group practice, the establishment of health centres in which general practitioners will combine curative treatment with preventive medicine and health education, the provision of a comprehensive consultant and specialist service, both institutional and domiciliary, the regionalization of hospital services, and the encouragement of medical supervision and research in industry. In many respects the present methods of teaching will not produce practitioners competent to reach the higher standard of practice that will be demanded in the future.

One or two general observations may be offered. Students should be taught the fundamental principles of health and disease rather than the diagnosis and treatment of separate diseases. A thorough knowledge of fundamental principles will produce a more understanding practitioner who will be able readily to absorb the advances in medical knowledge and technique as they occur during his career. Many practitioners at the present time find difficulty in keeping abreast of modern medical progress because they did not acquire a sufficient foundation in their student days.

More attention should be paid in the curriculum to the maintenance of health as distinct from the treatment of disease. The general practitioner working in the health centre should do much of the preventive work which is at present undertaken by public health medical officers—as, for example, immunization and the supervision of child life—and he should also be expected to instruct his patients in the rules of healthy living, the principles of diet, the care of infants, and other similar matters that concern health rather than disease. This function of the future general practitioner should be provided for in the medical curriculum.

The Association is informed that in some medical schools students are still required to spend an undue proportion of time in watching major operations being performed by the teacher. For most students this time could be spent more profitably in acquiring under supervision practical experience in those surgical procedures that are likely to fall to the lot of the general practitioner. There are other instances where the teaching could with advantage be made more practical. For example, when the medical school is near an industrial centre the theoretical teaching in industrial medicine, which is obviously to play an important part in future medical practice, should be supplemented by visits to neighbouring factories.

Resident House Posts after Final Examination

It seems to be now generally recognized that, as the Association recommended in its Report on Medical Education in 1934, every student should be required to spend some time in practice under supervision before he is permitted to embark on independent practice. For the purpose of the present memorandum the Association has considered two different views on the method of achieving this end. One view is expressed in the following paragraph of the Draft Interim Report of the Medical Planning Commission:

"94. It would be an advantage to both the community and the practitioner if, when the medical student has passed his final examination, he could spend some time in practice under supervision before he embarked in practice on his own account. It is suggested that the student should be registered provisionally when he has passed his final examination and that he should then be required to practise under supervision in some approved hospital or health service. The period of such practice should be one year, at least half of which should be spent in one hospital. At the end of the period, provided that his work satisfied the appropriate authority, he should be allowed to complete his registration."

The other view is that the tenure of a house post should form part of the curriculum before the final examinations are

reached. Unless the present curriculum is reorganized this suggestion would entail the lengthening of the course. Some supporters of this view hold that the methods of teaching medicine need to be entirely remodelled. They suggest that the course should still be of five years' duration, and that in the first four years the student should be taught the principles of medicine, while the fifth year should be devoted to the teaching of the application of those principles. During this final year the student should act as a house-physician or house-surgeon under the supervision of a teacher.

The Association is strongly in favour of the principle that students should spend some time in practice under supervision before they begin independent practice. It agrees with the Medical Planning Commission that this period should occur after the final examinations have been passed but before the licence to practise independently is granted. No formal examination should be required at the end of the period of practice under supervision, for the value of the experience might be diminished if the student had the prospect of an examination before him. The period should be essentially one of instruction, but the student should assume some responsibility.

The length of the curriculum before the final examinations should remain the same as at present. The student should then spend one year in practice under supervision and should receive reasonable remuneration for the work he does. Six months of the year should be spent in an approved resident hospital post, and the remaining six months should be spent, as the student elects, either in a further hospital post or in another approved form of practice.

Postgraduate Courses for General Practitioners

One of the gravest disadvantages of present-day general practice is that most practitioners have neither the time nor the opportunity for postgraduate study. The knowledge they once possessed grows rusty, their outlook becomes restricted, and they are unable to keep abreast of new discoveries and new techniques. What opportunities there are for postgraduate work are too few and too centralized, the courses do not always give the practitioner what he most needs, and the instruction is frequently given by teachers who are not experienced in general practice and lack understanding of the general practitioner's outlook and difficulties. Postgraduate study should be a regular and recognized feature of general practice, and adequate and suitable facilities should be provided. It is believed that if suitable local authority hospitals were used in addition to the voluntary centres already providing instruction the demand could quite well be met.

The Association submitted a memorandum in 1934 to the Council of the newly opened British Postgraduate Medical School in which it made suggestions for the type and content of courses for general practitioners. These suggestions were accepted as the basis of the general practitioner courses given at the school, and the courses have proved popular and useful. Broadly speaking, general practitioners desiring postgraduate instruction may be divided into three groups: (1) those who need "refresher" courses to bring their knowledge up to date or to verify their own ideas and conclusions; (2) those who are interested in a particular subject or branch of medicine and who desire a systematic course of study in it; and (3) those who wish to become recognized as specialists in a particular branch of medicine and desire specialist instruction. The present section deals with the first group. It is suggested that when a national scheme of medical service is organized periodical refresher courses of the kind indicated should be made compulsory.

Duration of Courses.—The type of refresher course suggested by the Association in the memorandum mentioned above was a fortnight's intensive course, and this method was also adopted in arranging courses specially for insurance practitioners. This type, which allows the practitioner a short complete break from his daily routine, seems to meet with general favour, but there are some practitioners who would prefer a longer course at less frequent intervals and others who feel that week-end courses or weekly one-day or half-day courses at a neighbouring hospital spread over a period of weeks would better meet their needs. Efforts should be made to satisfy all these varied wants by utilizing both voluntary and local authority hospital resources, but whatever the type of course it should be organized on a systematic basis. For the purpose of those practitioners who desire a longer course—say, three months—opportunities should be available for them to be appointed as clinical assistants in the various hospital departments.

Content of Courses.—The ordinary refresher course should comprise:

(1) A "brushing-up" of the knowledge which all general practitioners should possess. This should include a revision of (*a*) the aetiology, diagnosis, clinical course, and treatment of the illnesses with which the general practitioner is in daily contact; and (*b*) methods for the maintenance of health, including nutrition and dietetics, child health, and ante-natal and post-natal care.

(2) Instruction in recent advances in diagnosis, treatment, and prognosis, with particular emphasis on methods which can be applied by the general practitioner unaided. The practitioner may have become acquainted with those advances through the medical literature, and the refresher course should provide him with systematic instruction and an opportunity of performing for himself new methods under the guidance of a teacher.

(3) Instruction in the recent advances in the diagnosis and treatment of common diseases which cannot be applied by the general practitioner unaided, but a knowledge of which should form part of his equipment. General practitioners in the health centres of the future should be associated with services providing the most modern specialist methods of early diagnosis and treatment, and they should be trained to make the fullest possible use of these facilities.

Teaching Methods.—The method of approach to each subject should be as practical as possible. The practitioner of several years' standing will find instruction of the out-patient type more familiar and easier to grasp than academic lectures. Illustrations by cases, films, pathological specimens, etc., should be freely used. The courses should be specially designed for general practitioners and should be given by teachers who are familiar with the general practitioner's difficulties and can sympathize with his outlook. Some parts of the instruction could with advantage be given by suitably qualified experienced general practitioners.

Arrangements for Attendance.—Sufficient courses at suitable centres should be organized to enable all general practitioners to attend them with reasonable frequency. The organization of the scheme should include arrangements for the provision and payment of locumtenents, the payment of the travelling expenses incurred by the practitioners attending the course, and a subsistence allowance or accommodation and board in or near the hospital at which the instruction is given.

Postgraduate Courses in Special Subjects

The arrangements for postgraduate study in the teaching centre should provide for two main kinds of demand for specialist courses—one for general practitioners who are interested in a particular subject and for the specialist who desires some instruction in a subject outside his own specialty, and the other for the practitioner who desires to qualify as a specialist in a particular branch of medicine or surgery. The courses should be organized from the parent hospital and should utilize the resources both in the parent hospital and in the general and special hospitals, whether voluntary or local authority, in the area.

Courses in Single Subjects.—The medical curriculum necessarily provides the student with little more than the minimum amount of knowledge required for the commencement of medical practice. After some practical experience a general practitioner often evinces a special interest in a particular subject and wishes to obtain wider and more precise knowledge of it. Opportunities of gaining such knowledge should exist at suitable centres. The object of the provision should be not to create pseudo-specialists or pseudo-consultants but to stimulate interest and broaden the outlook of general practitioners. Courses in psychological medicine, diseases of children, industrial medicine, nutrition and dietetics, and socal medicine are examples likely to prove attractive. If, as is hoped, co-operative practice in health centres gives the general practitioner wider scope and more time for thought it is likely that the demand for courses in particular subjects may increase. Courses in single subjects may also be required by specialists who believe that their usefulness would be increased by knowledge of subjects which are related to but not intimately associated with their own specialties. All courses should be organized on a systematic basis and should be of university standard. They should consist partly of academic lectures and partly of demonstrations and practical instruction, and the content of the instruction should be related to the practical needs of those attending. The teaching should be given by the teaching staff of the medical school, who should be associated with the heads of the clinical units in the various hospitals. The length of the course will vary with requirements. It may take the form of a fortnight's intensive course, or the practitioner may be appointed a clinical assistant in an appropriate hospital department for a period of three or six months. The provision of a reasonable number of clinical assistantships for postgraduate students should be a feature of the organization of a teaching centre.

Courses in Special Branches.—These courses will usually be those terminating in examinations for the various specialist degrees and diplomas, and their content and length will be

determined by the appropriate regulations. Ample provision should be made in the teaching centre for the teaching of specialists, and the resources of the area as a whole should be fully utilized. Hospital appointments in the area should include a sufficient number approved by the various examining bodies. In making provision for specialist training the changes that are likely to take place in medical organization and practice should be borne in mind. These may include consultant and specialist services available to the whole population, the basing of all such services on the hospital, and the undertaking of domiciliary work by consultants attached to hospitals. A comprehensive consultant and specialist service would involve a redistribution of practitioners, with the appointment of some to areas where they may be out of close contact with a teaching hospital. Provision should therefore be made for such practitioners to return periodically to a teaching hospital for refresher work and training in the latest developments of the specialty concerned. It is hoped that in the reorganization of medical services a definition of the qualifications required for consultant and specialist status will be established. The Association agrees with the suggestion of the Medical Planning Commission that the qualifications and standards of consultant and specialist status should be considered and determined by a recognized central body of academic character, and that one of the essential qualifications should be that the applicant should hold, or have held, a recognized hospital appointment in the specialty concerned. Provision for these posts should be taken into consideration when the facilities for training for postgraduate degree and diploma examinations are under discussion. The standard of the various diplomas should be kept at a consistently high level by constant revision and adaptation to the latest developments in the specialties. Systematic training should be available for all the specialties. While an excessive multiplicity of diplomas is undesirable, there is room for certain new diplomas—for example, in physical medicine and industrial medicine.

Research

Ample provision and facilities should be available in the teaching centre for the active prosecution of research in all branches of medicine. There should be a central body, analogous to the Medical Research Council, whose function it should be to foster and support clinical research. Arrangements should be made for the dissemination in all areas of the results of research.

The Association regrets that it has not had sufficient time to give full consideration to the question of the organization of research. It therefore merely submits the foregoing general principles.

The Profession in the Future

It is not yet possible to form a clear picture of the kind of medical service which will result from the plans for reconstruction now being made, nor is it known what toll of the profession the war will take, but it seems certain that more practitioners will be needed in the future than in the past. Lack of time for good work has for long been the complaint of the general practitioner. More general practitioners will be needed if they are to give a full unhurried service to all patients, to undertake some of the work at present done by public health and school medical officers, to make more regular routine medical examinations, and to pay due attention to the maintenance of health as well as the treatment of disease. More will also be needed to ensure that every practitioner may attend postgraduate courses at intervals or spend a period in a clinical assistantship if he so desires, and that he may take reasonable holidays.

The provision of a comprehensive consultant and specialist service easily accessible to everyone would involve a considerable redistribution of practitioners in this sphere. Whether this redistribution and the provision of domiciliary consultations would necessitate an increase in the total number of specialist practitioners required cannot be estimated until the results of the survey which is understood to be in progress are known, but it is probable that more specialists and consultants will be required in the future. With regard to public health medical officers the reorientation of the medical services now contemplated involves the transfer of some of the work now undertaken by these officers to the general practitioners in the health centres. The new service may therefore require fewer public health medical officers than at present, but, on the other hand, progress in environmental health may produce new duties for these officers.

Number of General Practitioners.—The Association has been specifically asked by the Interdepartmental Committee to submit its views on the number of general practitioners who may be needed after the war. The number will depend upon the form of the future medical service and the work that general practitioners will be required to undertake in addition to the duties which have hitherto constituted a general practitioner service. Any estimate can therefore be only very tentative. At present there are in Great Britain (i.e., England, Scotland, and Wales), including those temporarily serving with the Forces, between 21,000 and 22,000 general practitioners. On the assumption that, taking into consideration the duties and opportunities indicated in the penultimate paragraph above, a general practitioner can reasonably be made responsible for 1,500 persons, a population of from 46 to 47 millions would require about 31,000 general practitioners—that is, an increase of nearly 10,000 on the present figure. It may be found, however, after further consideration and investigation, that a general practitioner is able to care for a larger number—say, 1,800. In this case the number of general practitioners required would be about 26,000, an increase of nearly 5,000 on the present figure.

Selection of Medical Students.—While it is important that consideration should be given to the nature and extent of the knowledge required for medical practice and the methods of instruction needed, it is also important to consider the human material from which the future doctors are to be made. One of the reasons for some of the inefficiency which undoubtedly exists in the profession to-day is that any student who has or can acquire the money to pay for maintenance and tuition throughout the course and fulfils the educational requirements for admission to a medical school is eligible for training as a doctor, regardless of his suitability in other respects. The selection exercised by deans of medical schools is not always sufficient to exclude from the profession some men and women who, though able to pass the examinations, have not the aptitude, character, or staying power which are required for the arduous and responsible duties of a medical practitioner. The Association recommends that a recognized arrangement for the selection of medical students should be established, with the object of recruiting to the profession any boy or girl, from whatever section of the community, who shows a natural inclination for medicine and who has the character, health, and intelligence necessary for a successful medical career. The selection should be made by a small committee after consideration of a record of the candidate's previous history, a consultation with the head master or head mistress of the school attended, and a personal interview. Every intending student should pass through the hands of this committee as a condition of admission to a medical school. Financial assistance may be necessary in many cases. Although at present a large number of scholarships in medicine are available, comparatively few of them are sufficient to provide full maintenance and tuition fees throughout the course. Candidates therefore tend to be restricted to the middle or upper middle classes. It is probable that there are promising boys and girls in the lower-income classes who would be attracted to the profession if they could be guaranteed maintenance and tuition fees during the whole period of training. The Association recommends that funds be made available to assist selected candidates who could not otherwise enter the profession.

PROVIDENT SCHEMES

Once more Lord Nuffield has not waited on events, but has taken the long view and approved the inauguration by his Trustees of a Central Provident Association, the avowed object of which is to enable subscribers to provide against those extra expenses in illness which would not be covered by a comprehensive health service scheme. It is held that, when the comprehensive health service envisaged by Sir William Beveridge materializes, there will still be many families who wish to make their own arrangements for private-ward or nursing-home treatment with free choice of consultant or specialist.

The new provident association is constituted on a non-profit-making basis, and its solvency is guaranteed by Lord Nuffield's Fund to the extent of £150,000. Membership is open, without income limit, to anyone under the age of 60 who lives or is employed in any part of England, Wales, Scotland, or Northern Ireland, other than the London area, in which a Hospitals Services Association has already been sponsored by King Edward's Hospital Fund. The benefits will be in the form of grants-in-aid towards the cost of consultant and other specialist services and hospital pay-bed or nursing-home treatment. They do not include contributions towards the fees of general practitioners. For the hospital or nursing-home treatment of a subscriber or his dependants £6 a week will be paid for an aggregate period of six weeks in any one year. Substantial grants will be made towards consultant and other specialist services undertaken through in-patient treatment. An adult

member will receive up to £70 for any one operation or illness and a family may claim benefit up to £105 in any one year. The annual contribution for a subscriber without dependants is £2 15s. An adult dependant's contribution is £1 15s. a year, and 10s. is payable for each child under 18. Thus, a man and wife with two children will pay £5 10s. for a maximum benefit of £105 in any one year. There is no limit to the number of dependants included in a family membership.

The Central Provident Association's offices are at 16, King Edward Street, Oxford, but area sections are being organized in centres all over the country, including Edinburgh, Hull, Manchester, Tyneside, Hertfordshire, Surrey, and Lincolnshire. A Nuffield Provident Association is also being formed in Northern Ireland. Removal from one area to another will not affect membership. Although benefits are for the time being restricted to grants-in-aid for in-patient treatment, Lord Nuffield's Trustees hope that when hospitals and the medical profession are less affected by war conditions it may be possible to extend the scheme to out-patient treatment, and to provide full cover for families within certain income groups.

Lord Nuffield has thus done for the Provinces what the King Edward's Hospital Fund is doing for London, to which we referred in the *Supplement* of Feb. 20 (p. 27). It is appropriate here, however, to draw attention to that older provident association, the B.P.A., which for twenty years has been the means whereby people of only moderate incomes could insure against the expenses, often otherwise financially crippling, of a serious illness. The chief difference between the B.P.A. and the Nuffield scheme is that the former contributes towards the fees of the subscriber's own general practitioner—that is, it provides a form of medical insurance, a family-doctor benefit—as well as covering hospital and nursing-home charges, operation fees, and the fees of a consulting physician. There is no income limit in the B.P.A. scheme, and it is open to subscribers resident in any part of the country, including London. Whatever health service may be provided in the future as part of any social security legislation, one thing is more than ever certain, that no member of the middle classes need suffer the financial embarrassment which has too often in the past added to the burden of serious illness.

Correspondence

Planning in the Treatment of Cancer

SIR,—In his paper on "Planning in the Treatment of Cancer" Dr. Frank Ellis (May 8, p. 570) draws attention to the necessity for statistical investigation on the results of different methods of treatment in cancer and indicates the lines on which such investigations should be conducted. He does not, however, refer to the need to have some standard of reference in the shape of tabulations showing the results of present methods of treatment in large numbers of cases classified on a uniform system. A study of such tabulations indicates the directions in which further investigations are required, and enables them to be planned to throw light on definite points.

Since April, 1938, the Clinical Cancer Research Committee of the British Empire Cancer Campaign has been carrying on such a survey. All the hospitals in the County of London, including those of the L.C.C., co-operated in returning particulars of every case of cancer seen, whether treated or not, on standard case-cards, of which 31 were drawn up, each comprising a comprehensive questionary appropriate to a particular region of the body. Over 15,000 cases had been registered when the outbreak of war necessitated the cessation of further recording of new cases. The follow-up of these 15,000 cases has been continued by the hospitals concerned, in spite of difficulties caused by war conditions, and analysis of the records is going on continuously in this office. Reports of progress were published in the 15th to 19th Annual Reports of the British Empire Cancer Campaign in 1938-42 and reviewed in the medical press. At the end of the 5-year period of observation it is hoped to publish the results of the whole survey, after which the organization should be invaluable for investigating special problems. This comprehensive survey, at present limited to the London area, should form a valuable basis for similar schemes to be launched by the authorities throughout the country under the Cancer Act of 1939. The British Empire Cancer Campaign will gladly help with information as to its practical working wherever it is proposed to inaugurate a similar scheme. This should meet the admirable suggestions in Dr. Ellis's article.—We are, etc.,

HORDER, Chairman.
W. L. HARNETT, Medical Secretary,
Clinical Cancer Research Committee,
British Empire Cancer Campaign.

11, Grosvenor Crescent,
London, S.W.1.

Birth Weights on a Sliding Scale

SIR,—I would beg to call your attention to an extraordinary custom which is very prevalent among midwives but apparently unknown to many obstetricians. Some weeks ago I was informed by a consultant that she had found at a certain large maternity unit that the midwives made a routine deduction of 4 oz. from the birth weight of live babies "to allow for the cord and meconium." The birth weight of stillborn babies was, however, correctly recorded. Further inquiries revealed a disconcerting state of affairs. At five other general hospitals the midwives were found to be manipulating the birth weights without the knowledge of the medical staff and sometimes without the knowledge of the matron. Inquiries made from five well-known voluntary hospital training schools elicited that routine deductions were made at two, at two more nothing was known of such a custom, while at the fifth the matron had never heard of it, and it is certainly not done now, but graduate midwives have informed me that it was taught at this school in past years. Of a group of 104 graduate midwives questioned recently, about one-quarter had carried out the practice either at their training schools or in subsequent appointments.

The deductions are in some instances made on a flat rate varying from 2 oz. to 5 oz. at different hospitals, and sometimes on an intricate sliding scale—e.g., nothing for infants weighing under 5 lb., 3 oz. for those under 6 lb., and 4 oz. for those above 6 lb. At one voluntary hospital the nurses are taught to bathe the infant, put on a binder, weigh, and then deduct 4 oz. before recording the weight. To complicate things still further, at certain hospitals, but not at all, these deductions are made for live births but not for still. Perhaps the most disconcerting feature of the whole matter is that it had not occurred to any midwife out of the many questioned that it was her duty to inform the medical officer of the ward or practitioner in charge of the case of what she was doing. The reasons given by midwives for the practice are various, but the intentions seem very similar. Some say it is to prevent the inevitable fall in the baby's weight from worrying the mother. Others plead ingenuously that it was introduced to defeat an inconvenient hospital rule that babies must regain their birth weight before discharge.

The devastating effect of this custom on statistical comparisons of infants' birth weights needs no stressing. Perhaps some of your readers may care to institute inquiries on their own account with a view to securing a uniform and accurate practice in recording weights.—I am, etc.,

LETITIA FAIRFIELD.

Shortened Puerperium

SIR,—As a doctor and the mother of a five-months-old baby I would like to endorse strongly the letter (May 22, p. 644) on shortened puerperium. The first day after my confinement I started my abdominal muscles working, relaxing and contracting them for some minutes several times daily. On the fifth day I was sitting up and moving round the bed, also doing leg-raising exercises. At the end of a fortnight I felt very fit physically and enjoyed short walks.

What did strike me very forcibly was that the attitude one seems to adopt by instinct when carrying a baby in one's arms is very harmful to correct abdominal muscle tone. The mother tends to lean slightly backward with the back hollowed and the abdomen relaxed. If this were pointed out to mothers more "good figures" would be the result of correcting this tendency.

To feel physically fit is not the only requirement. I consider most strongly that every mother going home with a new baby

is in urgent need of some woman who will share her household cares for even a short period to allow her and the baby to "settle-in" at home.—I am, etc.,

Liverpool. ISABEL M. GARDNER.

SIR,—Dr. Denys J. Neal Smith (May 22, p. 644) proposes to solve the problem of the shortage of maternity beds by sending mothers home with their babies after an even shorter rest than now permitted. I only wish that he (and I) could experience parturition; we might then agree that the normal, but considerable, processes of involution and repair following childbirth and the management of our newborn offspring, about which we, as newly delivered mothers, have little or no practical experience, well merit three weeks' rest, with experienced guidance and help and freedom from all domestic worries and responsibilities.

He admits that the torn perineum, which he has skilfully repaired, necessitates a longer stay in bed than he would otherwise advise, but refuses to believe that unseen and more important muscles and ligaments need time to heal and undergo repair. Agreed there is no need to postulate a new theory for the pelvic organs; they obey the laws of pathology as do the rest of the body; after unaccustomed exercise they need rest.

Dr. Neal Smith's theory might work well in practice if the newly delivered mother could be sent home with adequate help, free from all domestic cares, so that she could take gradually increasing exercise, commencing by walking on all fours, so that her pelvic floor was not strained. He states that he is certain from his experience that prolapse is more likely to occur in the woman who stays in bed a fortnight than in the woman who stays only a week. Has he yet to meet the mother who, with a baby a month old, has stress incontinence with a feeling of prolapse, and in whom these symptoms slowly but surely disappear? In which class of patient do these symptoms and permanent prolapse prevail—the "pampered" well-to-do or the working-class woman? Let him follow up his cases carefully for another ten years and then inform us which way his experience leads.

Like Dr. Neal Smith I have no concern with the financial arrangements of private maternity homes, but in the interest of the delivered mother my experience suggests that not only should we condone the outcry about the shortage of maternity beds but that we should add to it with all our power.—I am, etc.,

Oxford. J. D. FLEW.

The M'Naghten Rules

SIR,—However dangerous the amateur doctor may be on occasion, amateurism in legal practice may be fraught with considerably greater danger, since there is lacking—as I suppose—the homologue in that profession of the *vis medicatrix naturae* to triumph over both wrong diagnosis and treatment. Yet so clear is the exposition in your leading article of May 15 of the "M'Naghten rules" that I feel emboldened to offer a few observations on a subject which might at any time be of personal consequence to any member of our profession.

In referring to "the defect of the M'Naghten rules" you imply that advance in our knowledge of human psychology during the hundred years subsequent to their institution and continued acceptance should lead to an alteration which would be acceptable to the majority of the legal profession. This advance is represented by the doctrine of irresistible impulse, and the application of the encephalograph.

From the viewpoint of the average man, without special regard to the legal or psychopathological aspects of the problem, it seems peculiar that the law, which has properly set a high value on human life, simultaneously invests the criminal with protective laws of evidence from which an almost ridiculously exaggerated view of the value of a murderer's life can be inferred. But be that as it may, it would seem that the present (M'Naghten) rules are not too strict, for they act as very reasonable safeguards: on the one hand in preserving the principles of criminal responsibility by placing on the defence the onus of proving their true application; and on the other hand in ensuring that no truly insane person shall suffer the death sentence. The desire to save a client from a death sentence is plainly the object of those entrusted with his defence, and acceptance of the plea of "irresistible impulse" achieves this object. But excluding cases of poisoning and the rare occasions when murder is carried out on a coldly calculated plan, we can visualize an irresistible impulse (albeit effective for only a few seconds before the actual perpetration of the crime) in all cases of murder. Furthermore, one is entitled to ask if the M'Naghten rules are applied to any other type of crime than murder. Logically the same pleas might be extended in regard to a minor crime, although I can quite understand the hesitancy of an advocate who recognized that acceptance would lead to detention in a criminal lunatic asylum—a result perhaps worse than an unqualified conviction.

The encephalograph is, I take it, still in the experimental stage, and only the result of tests upon a very large number of apparently normal persons will prove its ability to be so selective as to indicate abnormalities solely attributable to a person of homicidal tendencies.—I am, etc.,

London, W.1. ADOLPHE ABRAHAMS.

Advice on Sterility

SIR,—Lord Horder's letter on advice on sterility (May 22, p. 644) annoyed me very much. It is another example of the way that the general practitioner and family doctor is being shouldered out of the responsibility of his job and made to give way so that the public who used to, and still should, in the first place apply to him for advice are gradually being trained no longer to avail themselves of his sympathetic interest but to become cases in a clinic complete with number. To my mind it is far better for young married people who have often known, and been attended by, their doctor since they were born, and who have the greatest confidence in him, in the first place to consult him and seek his advice about their inability to have a child. Modern consultants seem to have no idea of the necessity for maintaining the personal element from which springs the confidence that is so necessary in illness.

Lord Horder "believes that there is a great opportunity to reach a certain type of patient who is not likely to present herself at a hospital out-patient department complaining of sterility." Has Lord Horder never heard of the general practitioner to whom practically all of the patients come in their difficulty? He must have done, and so is adding his quota to the gradual death of family practice and the gradual introduction of the inhuman and unsympathetic State Medical Service, unwanted by both doctors and patients.

In the last few years many women have come to me to ask my advice upon how to become pregnant after, in some cases, even a few months of sterility. I send them to our local gynaecologist, who carries out all the necessary investigations on the woman and often on her husband, and he instructs me in the details of the treatment, and I let him have reports on progress from time to time. These patients, some of whom I may have known for years, are by that method far more satisfied than if they became numbers at a clinic with no one behind them whom they know, like, and respect. They realize they are being treated by their own doctor instructed by the specialist, and it would astonish Lord Horder to see the pleasure with which they come to me and proudly say how pleased they are to find all our efforts have been successful. When their time comes they have the greater faith that I will "pull them through," and, as faith works wonders, they do well. I have within the last three months had three such cases to deal with, and their confinements have been singularly placid and successful, largely due to their belief in me.—I am, etc.,

Bracknell, Berks. R. H. P. HICK.

Withdrawal of Blood for Transfusion

SIR,—A safety valve for an electric suction pump used for obtaining blood for transfusion was described by Dr. E. M. Watson (March 13, p. 321). No criticism is here intended or implied in regard to this particular apparatus.

We would, in the light of our experience in the bleeding of large numbers of donors, question the necessity for suction in the withdrawal of blood. We consider that suction is neither necessary nor desirable. Some thousands of donors are regularly bled by the gravity method in the regions under our charge. The method is easy and simple. The introduction of the principle of suction merely complicates unnecessarily what is, and should be, an extremely simple procedure. That technique should be simple and safe is a principle which requires

no emphasis, and the method should at all times be reliable. It should be equally applicable in great and small hospitals alike, and must not fail under stress of special emergency conditions.

It may be argued that suction accelerates blood withdrawal, but there is evidence that this is not always in the best interests of the donor. The smooth flow of blood can on occasion be interrupted by suction of the wall of the vein into the needle. Nothing is to be gained by speeding up the rate of blood withdrawal or by complicating technique. It is not uncommon for a single medical officer to bleed one to two hundred donors in a day with the aid of a few nurses and working perhaps in a village hall. Suction is never necessary whether a 24/10 or 19/10 needle be used. There is the possibility that blood taken off by vacuum may be haemolysed or otherwise spoiled, especially as it offers greater opportunities for contamination. Since there seems to be no special advantage to be derived from the use of suction, which introduces other possible dangers, blood withdrawal by the gravity method appears to us to be the ideal method, and therefore, in our opinion, the method of choice. It has stood very extensive trial, is completely reliable and completely safe.—We are, etc.,

E. F. AUBERT, R. DRUMMOND,
T. H. BOON, W. S. STANBURY,
W. CANT, J. F. WILKINSON,
T. B. DAVIE,

Regional Blood Transfusion Officers.

Crush Injury and Anoxia

SIR,—In his letter (Nov. 14, 1942, p. 588) Dr. J. A. Barclay, while agreeing that the crush syndrome and blackwater fever are similar conditions (as emphasized by Dible, *Journal*, 1941, **1**, 904), apparently rejects the suggestion that the renal changes in blackwater fever are due to anoxia, on the ground that Ross was unable to find an increase in blood lactic acid in malaria. In Manson's *Tropical Diseases*, 10th edition, page 89, Manson-Bahr states that in blackwater fever "with the replacement of active functioning red blood cells (by transfusion) urinary secretion is rapidly re-established." This being so, it would appear certain, for the reasons given in my previous letters (Oct. 24, 1942, p. 495, and July 26, 1941, p. 139), that anoxia is the cause of the anuria in blackwater fever.

The conclusion arrived at in the same letters—that the anuria and renal changes met with in crush injury are due to anoxia following traumatic shock—receives additional support from your leading article "Experimental Shock and the Crush Syndrome" (Aug. 22, 1942, p. 222), in which you state that severity of shock and severity of renal damage in crush injury seem to run parallel, and to depend on the extent of the injury. I would suggest that the biochemical changes found in crush injury are the result of (1) trauma, (2) the generalized damage (renal, etc.) caused by anoxia.—I am, etc.,

Sydney. J. WALKER TOMB.

Oedema of Extremities at Sea

SIR,—I shall be glad if you can find space in the *British Medical Journal* for the following expression of my own experience and views on a matter which has caused anxiety in the minds of R.A.M.C. officers in charge of transports recently—namely, the occurrence of oedema of the feet and ankles in fit men during a voyage.

I have considerable experience of life at sea in a large variety of types of ship, both fighting ships (as I was a temporary surgeon R.N. 1914-19) and merchant ships, large and small. In fighting ships I do not remember any trouble with oedema, but in pleasure voyages in liners I have often experienced oedema of my own feet and ankles at times when I have been quite fit otherwise. I believe this is induced by reclining in deck chairs or on the deck itself for want of anything better to do. The natural position on the upper deck is to face out towards the sea, and owing to the slant of the deck towards the side and the roll of the ship, there is a form of centrifugal action set up which I believe is the cause of the oedema. I have found that exercise (e.g., deck sports) tends to get rid of the oedema, and I agree with the suggestion in the R.A.M.C. publication on this subject that wearing rubber shoes tends to make oedema more likely.—I am, etc.,

HAROLD E. THORN.

Bovine Tuberculosis in South Africa

SIR,—In this country there is evidence that some factor in addition to the presence of bovine bacilli in milk has a determining influence on the number of human infections. One is led to consider such a possibility in view of the following:

The human disease of bovine origin is exceedingly uncommon here. There have only been three proved cases in the last ten years, as the outcome of a diligent search over that period. This search was sponsored by the Government, and a great deal of bacteriological work was carried out. Moreover, surgeons will tell you that the typical non-pulmonary lesions of this disease in humans are not commonly seen by them.

Now, what of the disease in our dairy herds? Ten years ago when a campaign was started for slaughtering all reactors in the Durban area over 30% of reactors was found in all herds. That campaign was soon dropped, however. Since then the bacteriological testing of milk in the Johannesburg area has shown that 2.5% of cows are excreting bacilli. This, admittedly, is not very high, but can it be considered low enough to account for the rarity of human cases? Either we are making a mistake somewhere or there is another factor in this disease which is eluding us, for there is no doubt that we are, one might say, getting the Toronto results without pasteurization or heat treatment of any kind.

Milk here is consumed by the vast majority of people in the raw state, and very little of it is T.T., although the pasteurized article is being slowly adopted by the more enlightened elements of the European population. Moreover, the standard of general cleanliness of our milk is not very high, because our native milkers make it almost impossible for us to have it otherwise. The community is probably, therefore, getting a large number of other infections handed to it, and for that reason enforced wholesale pasteurization is almost certain to come here after the war. I only hope that our milk will not become too dirty to pasteurize properly through attention being drawn away from the necessity for clean production and replaced by faith in a machine.

However, the point of this letter is to stress the apparent peculiarity of our bovine disease position. Dr. A. H. Macdonald will probably say that we are maintained immune through constantly consuming small numbers of bacilli. E. J. Pullinger of the municipal abattoir, Johannesburg, thinks that the explanation can be found in that relatively few infected cows become excretors of bacilli in this country, although he says that tuberculosis among them is widespread. Yet I cannot help feeling that if 2.5% of our dairy cows are excreting the organisms there ought to be many more human cases, or is there something in this subthreshold oral vaccine business after all? However, in a country like this, where we have so much enteric and dysentery, the case for pasteurization is overwhelming. We have just had a large proved milk-borne epidemic of typhoid in this city. A native milker of a big dairy was found, through the agency of the Vi test, to be heavily excreting the bacilli in both urine and stools.—I am, etc.,

Durban. BASIL F. SAMPSON.

Atropine Glaucoma

SIR,—Dr. J. E. Martin's opening sentence (May 22, p. 631) runs: "This tragic condition continues to blind many eyes." Surely this is nonsense. Never having seen a patient so blinded, I consulted a senior colleague, who with difficulty recalled one case, and even that was open to doubt.

It is right to be wary of instilling atropine into the eyes of elderly patients who have a shallow anterior chamber, but if this should be necessary, the harmful effects have been rather overstated in the past. It has even been said, with some truth, that if atropine should send a patient into acute glaucoma, that patient had a chronic glaucoma already, which is now diagnosed for the first time in circumstances that allow of skilled attention, instead of being overtaken by the acute condition perhaps at night and far from help. There are several eye diseases which are "tragic" and "blinding," but surely atropine glaucoma is not one of them.—I am, etc.,

London, W.1. SEYMOUR PHILPS.

Health Units in the Colonies

SIR,—In your editorial on health units for the West Indies (May 22, p. 639) you remark that the health unit is a new idea for the Colonies. Health units have, in fact, been in operation in Ceylon since 1926; they were advocated for Mauritius in 1931 and formed there during the following year; health centres on somewhat similar lines were developed in Kenya several years before 1933 and in Uganda in that year; in the Straits Settlements organizations of comparable nature were operating before 1933. Health units have been known for a considerable time in India, the Philippine Islands, and other countries. These units and centres differ in some respects in the various countries, but the main object of all is the improvement of rural health; they have unequivocally proved their value. I feel that it would be unfair to the many officers of the Colonial Medical Service who have initiated and expanded these units, and to the native staffs who have carried out so much of the work, if your editorial were allowed to pass uncorrected.—I am, etc.,

CHARLES WILCOCKS,
Acting Director, Bureau of Hygiene and Tropical Diseases.

Chemical Luminescence Test for Blood

SIR,—In reply to the letter of Dr. S. R. Naidu and Mr. N. Pitchandi (May 8, p. 583) the chemical luminescence test for blood is certainly not specific, as it is given by potassium permanganate and many other common oxidizing agents. However, we have found it very useful in testing for occult blood in stools when false positives due to contamination are extremely unlikely. Here the test has the great advantage of simplicity, and in wartime saves the use of guaiacum, benzidine, and ether. The luminescence is so strong that absolute darkness is hardly required. We have found it to be as reliable as the more orthodox tests. A short account of the method as applied in this way is in preparation by one of us (J. L. H.) and will be published elsewhere.—We are, etc.,

J. L. HOSKINS.
R. E. REWELL.

Coulsdon, Surrey.

London Emergency Bed Service

SIR,—The exigencies of war have probably affected the medical profession more than any other—general practitioners in many cases are doing double duty—and it is more than ever important that measures which save them time and trouble should be brought to their notice. Owing to the great changes in the personnel of the London doctors, a considerable proportion of them are unaware of the facilities provided by the Emergency Bed Service. For their benefit the following brief particulars may be helpful.

The E.B.S. is financed by King Edward's Hospital Fund for London on behalf of the voluntary hospitals, and arranges for the admission to hospital of urgent cases but does not deal with waiting-list cases. It is able to give immediate advice to doctors as to which hospitals are likely to be able to admit their patients, as it keeps a running record of available beds. The doctor decides which of these hospitals he thinks most suitable; the E.B.S. then rings the hospital and books a bed, and when necessary arranges for an ambulance to collect the patient. Thus doctors obtain the admission of their patients to hospitals of their choice by making one telephone call and are saved the possibility of many unnecessary calls to hospitals which have no empty beds. In the five years in which the E.B.S. has been working no suitable case has been refused, some 22,000 having been admitted through the Service.

The Service is open from 9 a.m. to 10 p.m. daily, including Saturdays and Sundays. Telephone numbers are City 2162 and Clerkenwell 6571.—I am, etc.,

H. A. WERNHER,
Chairman.

10, Old Jewry, E.C.2.

Independence for Medicine

SIR,—I wish to draw to your notice the following observations upon medical reorganization, as I believe the views expressed must coincide very nearly with those held by the majority of the medical profession. Assumptions based on false premisses may still mislead us in our endeavour to improve on our service to the public.

An independent practitioner, consultant, and auxiliary medical service is essential to the welfare of the people. The private doctor must remain the friend of his patient—his advocate, as he has always been—whether the patient be rich or poor. He must not serve the State first; the individual makes the State. He must be independent in order adequately to represent his patient's interests in relation to those of the community. The State doctor must owe his first duty to the State. Let the two systems flourish in the English way, with mutual advantage and respect.

The present medical service provided by the National Health Insurance Acts should be expanded. So far as is possible, doctors in the State service should be encouraged to have private patients in order to keep them in touch with the needs of the individual. Conversely, doctors in private practice should be given extended opportunity for part-time hospital and State service, so that community needs—such as control of certification, records, economic use of public funds for medicines and appliances—should be correctly observed. Acknowledgment of both principles will bring unity to our profession, and will attract to it the many new entrants it requires.

Health centres are of value in providing facilities for seeing patients who are able to visit the centres, and in bringing doctors together. But they are necessarily of limited value, because two-thirds of a doctor's time is spent in visiting patients in their own homes, and much of this work will remain in the doctor's own hands, even to the point of arranging his rounds and responding to unexpected and urgent calls upon his services.

The plan should be to improve and expand the present medical services. Though it is acknowledged that they are not good enough, nevertheless they are very good. They form a good foundation on which to build. The same principle applies to the voluntary and municipal hospitals. Let the minor defects in each system be remedied gradually. It is pure iconoclasm to contemplate pulling down either edifice simply because the system of illumination varies or is imperfect.—I am, etc.,

G. H. ROSSDALE.

London, W.1.

Achieving Reform

SIR,—The discussion concerning the necessity for or advisability of a State Medical Service to provide a "comprehensive" medical service for the whole nation proceeds on its inconclusive course without any practical exposition of what is intended by a "comprehensive" service. We have recently listened to many excellent speakers, who, however, have left us in doubt whether their vision is on a par with their oratory, while the custom of dragging red herrings across the trails of one's opponents continues as of yore. Changes in the organization of the profession are inevitable; let us see to it that they are worthy of our profession.

Two sides of the question have to be considered—the medical and the economic—and, I think, in that order, planning first an ideal service and then deciding how it is to be financed, cutting our coat according to our cloth. I cannot subscribe to the opinion expressed at one of the recent meetings by a distinguished surgeon that all is well with the profession, which only needs to be left alone without Government interference. As an instance of Government failure he mentioned the case of a boy in hospital under his care who required sanatorium treatment and who, after a long waiting period, still occupied a bed much needed for another case because no sanatorium was ready to receive him. I know personally a patient who has been waiting three months for the much-needed treatment of a secondary growth. But is this to be ascribed to Government neglect or to the failure of our profession to impress upon the public the need for more institutions or centres where the necessary treatment could be obtained? Health centres are to provide additional means for diagnosis and treatment, not, *pace* Dr. Charles Hill, to furnish general practitioners with consulting rooms, although, admittedly, the latter object was part of Lord Dawson's scheme.

Much as I respect and honour my brother practitioners, I cannot claim for them that as a body they are very active reformers. The idea of rheumatism clinics spread very slowly after I had in 1921 persuaded the Kensington Division, B.R.C.S., to found one, and I do not recall any medical support in the Press for my advocacy fifteen years ago of more provision for the early diagnosis and treatment of cancer. The much-

criticized Mr. Bevin long before he entered Parliament spoke of the great need for more convalescent homes, on which subject the profession has not been very audible.

We must not be satisfied with things as they are; Government assistance will be needed, but that does not necessarily mean that we must have a State Medical Service. That might indeed bring about many needed reforms, but illness is too intimate an affair to be regimented, and better results would probably follow a well-organized development of the present system.—I am, etc.,

London, W.8. HAROLD H. SANGUINETTI.

State Medical Service

SIR,—The correspondence I have received since you published my letter on April 3 indicates how widely spread in the profession is the alarm at the idea of a State Medical Service—an alarm which has been notably increased by the article of the Medical Correspondent of the *Times* and the subsequent leader on "absent doctors" in that journal. In the latter it is stated that there is no reason why the absent doctors should be thought less progressive (an entirely question-begging epithet in the circumstances) than those at home or that the views of the two groups differ. As a comment on that I may quote from a letter sent to me this week by an absent doctor: "Since joining the Services nearly 2½ years ago I have had the opportunity of discussing the future of medicine with Service M.O.s from many different branches of that calling—G.P.s (like myself), newly qualified doctors, and so on. Only two have expressed a desire for a State Medical Service. Indeed, as time passes, there is a growing concern as the full implications of State service are more clearly realized."

I sympathize with our representatives faced in conference by politicians practised in the arts of suave diplomacy. As a profession we are under the handicap inherent in a democracy; we lack a complete alternative plan and we are not all of the same mind. We are as anxious, however, for the good health of the community as anyone; indeed, we showed that interest long before the somewhat belated conversion of the politicians. The principle of insurance has been conceded, and we should concentrate on the question of keeping control of the conditions under which we serve the community. But protests against exploitation must continue, and signs are not lacking that these are beginning to have some effect. Lord Dawson's statesmanlike appeal for evolution and not revolution will carry weight. Even the *Times* in its leader of May 17 is less coercive in tone, and appeals to our "tradition of disinterested social service." Yes, but in return we claim the right to justice and proper consideration.—I am, etc.,

London, W.1. W. LANGDON-BROWN.

Specialists and State Service

SIR,—During the past three weeks I have undertaken the duty of circularizing the greater part of the radiologists throughout Great Britain and asked them to answer a number of questions in the form of a questionary, which was drawn up to ascertain the feeling of this group of specialists concerning their future and the part they would be prepared to take in any comprehensive medical service that might be introduced in the future. The analysis of this inquiry is as follows:

The proportion who replied represented approximately 50% of the total. Of those who did not reply some are on active service and did not receive the questionary, others have died, and the remainder have observed a benevolent neutrality. The replies, therefore, may be regarded as representative of radiologists throughout the country.

1. AGAINST a whole-time State Medical Service	85%
2. Those who seek a haven of rest in a whole-time State Medical Service	13%
3. The final neutral residue	2%
4. In favour of a part-time State Medical Service, permitting private practice	84%
Against a part-time State Medical Service	16%
5. For no form of State Medical Service at all	14%
6. Those who prefer to continue their private practices from their own private rooms	57%
Those who prefer to do all their work (including private practice) from a hospital department	43%
7. Those who desire the interests of radiologists watched..	100%
8. Those who desire the formation of some representative medical committee to watch their interests	93%

It is clear from these returns that the majority of radiologists in Great Britain support the policy in general as advocated by the B.M.A., but not that as advocated by the Faculty of Radiologists. Recently this body has sent round circulars to hospitals asking for comments. I would refer to the pamphlet issued by this body in Dec., 1942, *Planning of Radiodiagnostic Services for Great Britain*, page 6, under paragraph headed "Terms of Service of Radiologists": "There was also a majority of two to one who held the view that their district would best be served if all *x*-ray diagnostic work, including private work, was concentrated in hospital." The present return to my questionary under No. 6 is a definite contradiction of this statement.

On page 7 the pamphlet proceeds: "Only by the adoption of a planned scheme by a regional authority, armed with powers of persuasion sufficient to ensure its acceptance by the hospitals and commanding funds sufficient to meet added expense, will the *x*-ray diagnostic services be raised to a satisfactory level of efficiency." It sounds like an order from the Nazi headquarters. The pamphlet on *Planning of Radiotherapy for Great Britain* regiments London into six divisions, while the Provinces are to have some ten centres. The paragraph continues: "With such an arrangement it is assumed that the other hospitals in the area would not practise radiotherapy, but would make their arrangements for radiotherapy with the appropriate London centre."

It would therefore appear that the Faculty of Radiologists favours something in the nature of a whole-time State Medical Service which is not favoured by the majority of radiologists in this country. As to the contradictory statements concerning private and hospital practices, it may be that the inquiry on this point was made before many of the radiologists appreciated what a whole-time State Medical Service might mean to them and their futures. They are now beginning to realize what such a change would mean on the basis of terms that have been hinted at during the recent few weeks. Nevertheless, if the Faculty of Radiologists proposes to assume any form of safeguards for radiologists in this country it should announce quite clearly what form of State service it supports, and take immediate steps to correct any erroneous views as to the wishes of radiologists as I have indicated above.

These matters and others were raised by me at a recent meeting of the British Institute of Radiology in London, where I pressed for more active measures to safeguard the interests at this time. As a result of all this we are to have soon a mass meeting of radiologists to appoint a committee to consider this subject. I submit these facts in the hope that they may encourage other branches of specialists and consultants to organize and prepare themselves, and so be in a better position to consider the proposals of the Government when they are issued on a comprehensive medical service for the country, and let us hope we all act in unison.—I am, etc.,

London, W.1. NORMAN P. HENDERSON.

The Government's Proposals

SIR,—Dr. Hill in his comments to the Metropolitan Counties Branch (*Supplement*, May 22) fails to criticize three points.

1. The salaries suggested, which substantially reduce the income of the general practitioner, and in many cases by over 50%. For example, the purchase of a share of a practice bringing in £1,500 gross is common, and the deduction of £150—being 5% interest on the purchase price—and £400 expenses (based on my total personal and surgery expenses, which are 27%), gives a net initial income of £950 instead of the £400 proposed by the Minister, and without an increase for 3 years.

2. Whether a pension is payable. If so, £100 should be deducted from the £950 net to give a pension of £500 at 65 or disablement and £250 for a family allowance in the event of early death (*vide* N.H.I. practitioners' insurance scheme).

3. Whether the compensation for capital is to be full—e.g., 2 years' purchase for a partnership on a three-years average.

I cannot agree with Dr. Hill that we should "stick to fundamentals," as his "fundamentals" exclude the discussion of the proposed reduction of our income, and it seems to me suicidal to omit from the preliminary discussions before the publication of a White Paper the only two points about which most of us agree—namely, that if there is to be a full-time salaried

service we should be fully compensated for our capital, and that our income should at any rate not be reduced. I know no Government scheme to reduce the income of any other profession, trade, or occupation.—I am, etc.,

Basingstoke. CHARLES COBB.

SIR,—Although Dr. Charles Hill carried the recent Metropolitan Counties Branch Meeting with a vast and dynamic *tour de force*, there must have been many misgivings in respect of the absence of any collation of professional policy with other vast world movements. There was a great lack of understanding that whereas individuality has to be preserved competition has to be destroyed, both among individuals as among nations, and in industry itself; for it is more and more granted that there must be no divided interest in industry.

In international finance you see it in the Keynes plan for an international clearing house. The adoption of such a plan would compel world trade to fall in with the world forces of co-operation and so destroy that international competition which is the most persistent cause of world war. In industry you see it in the efforts of capital and labour to find a common formula. In foreign affairs every effort is being made to seek a world comradeship expressed, however inadequately, in the Atlantic Charter. Since 1914 the most conspicuous effects that competition has brought into the world have been great wars, vast revolutions, world-wide discontent, terrifying national debts, and floods of unemployment.

But doctors are perhaps too busy doing good even to have noted these things, and their cause. And so they stand aloof, holding their little screaming baby of competition, and imagine they can stand alone in a world that has opened the flood-gates to more human values.—I am, etc.,

London, S.E.25. J. C. JONES.

A British Hospital for Stalingrad

SIR,—We all know the importance of the battle for Stalingrad. We all realize that this victory was only made possible by the suffering and heroism of its people. The Joint Committee for Soviet Aid is aiming to raise sufficient funds to build a new hospital at Stalingrad. We earnestly appeal for a nation-wide response to this effort.

This hospital will be a permanent expression of the British people's gratitude to the defenders of Stalingrad, who have made such a great contribution to the final victory of the United Nations.—We are, etc.,

WILLIAM CANTUAR: J. H. HERTZ.
DAVID LLOYD GEORGE. A. J. CUMMINGS.
KATHARINE ATHOLL. JACK TANNER.
LYTTON. F. GOWLAND HOPKINS.
WILL LAWTHER. RACHEL W. MACROBERT.
HORDER. MARY MURRAY.
CAROLINE HASLETT.

*** All communications should be addressed to the Organizing Secretary, Joint Committee for Soviet Aid, 171, St. Stephen's House, Westminster, S.W.1. Cheques should be made payable to the Joint Committee for Soviet Aid, and crossed "Stalingrad Hospital Fund."

Obituary

HERBERT JOHN SHIRLEY, C.M.G., M.D., F.R.C.S.

The death took place suddenly on May 14 of Herbert John Shirley, consulting anaesthetist to University College Hospital. He was the son of Mr. William Scharlieb, a barrister practising in India, and Dame Mary Scharlieb, who was gynaecologist to the Royal Free Hospital and is still well remembered for her public work in several capacities, especially in the cause of the welfare of women. Their son, H. Johann Scharlieb, was born in 1868, and changed his name by deed poll to Shirley in 1914.

He received his medical training at University College Hospital, London, and qualified in 1894. A little later he took the M.B., B.S. with honours, in 1898 the London M.D., and in 1899 the Fellowship of the Royal College of Surgeons. He served as house-physician and house-surgeon and as gynaecological assistant at University College Hospital, and as clinical assistant at the Hospital for Sick Children in Great Ormond Street. His career as a practising doctor had only lately begun when he volunteered for service in the South African War. As physician and adjutant, Langman's Hospital, in the South African Field Force, he showed those qualities which would, had he chosen to devote himself to it, have carried him to distinction in a military career. He was mentioned in dispatches, and on his return was made C.M.G. Settling again in the practice of medicine in London, he made a special study of anaesthetics, and in collaboration with Sir Edward Sharpey-Schafer produced some original work on the action of chloroform on the heart and blood vessels. During the first world war, although over military age, he enlisted and served with the British Expeditionary Force as lieutenant-colonel, 2/5 Lancashire Fusiliers, and again his name appeared in dispatches. In 1917 he exchanged to the R.A.M.C., became consulting anaesthetist in the Malta Command, and had charge of the military hospital, Manoel, Malta. At the end of the war he was S.M.O. in a motor transport division of the R.A.S.C., and he retained his military rank as brevet colonel commanding Artists' Rifles. He was proud to hold Volunteer and Territorial decorations. His work as consulting anaesthetist to the hospital of his student days was much appreciated, but he did not take any considerable part in medical discussions or publication. He was the author of the article on "Chloroform" in *The Practitioner's Encyclopaedia of Medicine and Surgery*, and in the British Medical Association, to which he was first elected in 1895, he was honorary secretary of the Section of Anaesthetics in 1910 and vice-president of the Section of Pharmacology and Therapeutics, with Anaesthetics, in 1936. He was a Deputy Lieutenant of the County of London.

SIR NILRATAN SIRCAR, M.D., D.C.L., LL.D.

The death in Calcutta of Sir Nilratan Sircar, at the great age for a Bengali of 81, has removed a leading member of the medical profession in India. He was educated at the Calcutta Medical College, and took both the M.A. and the M.D. of the Calcutta University. He soon obtained a large practice, and was for many years a leading Indian consulting physician. He was a member of a well-known Bengali family, another of whom was a leading lawyer and politician, and he was a man of very wide interests. His lot fell at a time when Indians were taking an increasing interest in education, commerce, and politics; in all of these he was in the forefront. He thus became one of the founders and President of the Carmichael Medical College with its own hospital, which was opened during the war of 1914-18 with material financial help from the Government of Bengal, when Lord Carmichael was Governor under the more advanced regime then coming into force in India. This was the first medical college in Bengal which was staffed and controlled entirely by Indians and which educated up to the university standard as opposed to the shorter medical course for a diploma at the Campbell Medical School, whose teaching staff was filled by Indian graduates in the service of the Bengal Government. Sir Nilratan Sircar also became president of the Calcutta Medical Club with Indian members, of a tuberculosis hospital, and of a postgraduate department of science of the Calcutta University, as vice-chancellor of which he also served for a term. Nor did these various medical interests exhaust his energies, for in the movement for the production of Swadeshi goods—that is, country-made ones—he became the proprietor of a national soap factory and a national tannery company. He also took an active interest in politics and served as a member of the Bengal Legislative Council under the reform scheme. He came to England in the 'twenties for a meeting of the British Empire Universities Bureau, when he received the D.C.L. Oxford and the LL.D. Edinburgh. He had previously been knighted in 1918 for his work for medical education. His genial presence will be missed by many of his friends.

W. BREMNER HIGHET, F.R.C.S.

Brigadier GEORGE RIDDOCH, Consulting Neurologist to the Army and Hon. Consultant Adviser, E.M.S., in Peripheral Nerve Injuries, sends the following appreciation:

All who knew William Bremner Highet must miss him and lament his loss. He was a delightful person, quiet, rather shy, but yet definite in his personality and with a twinkle in his eye to relieve his earnestness. The Peripheral Nerve Injury Centre at Oxford was fortunate in having him as first assistant to Prof. Seddon for the first three years of its existence. His work there, both routine and research, was first-rate, and he held his place well in a brilliant team. Like the others, starting from scratch with little knowledge of the neurology of the peripheral nerves, he applied his keen, painstaking, and critical mind to the variety of problems presented by patients admitted to the centre, with the result that he was becoming one of the leading experts in this subject. It was for this reason that he

was chosen to undertake important work in this field for the Army abroad, and on his way misfortune overtook him. It is a sad and wasteful business. He had already accomplished much and was well set to do much more. He will certainly be missed.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. R. H. Berry, R.A.M.C., Capt. G. Dison, R.A.M.C., Capt. J. D. Finnegan, R.A.M.C., Capt. T. Gass, R.A.M.C., Capt. L. G. Harper, R.A.M.C., War Subs. Capt. J. W. Logan, R.A.M.C., War Subs. Capt. R. G. MacLeod, R.A.M.C.

Prisoner of War—Major H. M. Alexander, R.A.M.C.

Killed.—Capt. J. G. Cassidy, R.A.M.C., War Subs. Capt. D. W. McCarthy, R.A.M.C.

DEATHS IN THE SERVICES

Major-Gen. JAMES STUART GALLIE, C.B., C.M.G., D.S.O., R.A.M.C. (ret.), died on May 1 at Winfrith, Dorchester, aged 78. He was born at Queenstown and took the L.R.C.P.&S.Ed., the L.R.F.P.S.Glas., and the L.M. in 1894, and also studied at Queen's College, Cork, and in Vienna before entering the Royal Army Medical Corps in 1898. He very soon saw active service in the South African War in the operations for the relief of Ladysmith and throughout the subsequent campaigns in the Orange River State and the Transvaal. He rose to be a director of medical services during the 1914–18 war and did valuable work in superintending the evacuation of many wounded from the casualty clearing stations to the base hospitals in a cheery and indefatigable manner. He was mentioned in dispatches six times, awarded a brevet colonelcy and the D.S.O. for these services, and in 1926 was selected for the medical directorship at Aldershot. In the same year he was made honorary surgeon to the King, in 1928 was made a C.B., and retired in 1930. He married Florence Ostle Crighton of Hove in 1903 and had two sons and two daughters.

Repatriated.—Col. G. P. Kidd, M.C., R.A.M.C., Lieut.-Col. J. T. Lewis, R.A.M.C.

Medical Notes in Parliament

The Consultations with the Government

Sir E. GRAHAM-LITTLE on May 26 asked what answer the Minister of Health had given to a large meeting of medical practitioners held recently to discuss future arrangements for medical practice.

Mr. ERNEST BROWN said he was not sure to what meeting Sir Ernest referred. He thought it well to make clear the situation which Sir Ernest had in mind. Mr. Brown continued: After the announcement by the Government in February last that they accepted in principle Assumption B of the report of Sir William Beveridge and would proceed with the preparation of a comprehensive national health service for the whole population, I began discussions with representatives of the medical profession, voluntary hospitals, and local authorities as to the best ways and means of organizing such a service. These discussions were, by agreement, to be nothing more than confidential and preliminary talks without commitment on either side, and for the medical profession they were conducted by a Representative Committee of medical men and women brought together by the B.M.A. in collaboration with the Royal Colleges. As a basis for discussion I have from time to time put ideas of my own before this committee, and have invited them similarly to let me have their ideas and their full and free criticism of mine. In this way my intention was to arrive at a stage when I could review the whole subject in the light of these discussions, and could then pass from the preliminary stage by publishing a general statement of proposals for open and public discussion in Parliament and elsewhere. Recently this committee came to me with the suggestion that the whole subject should now be referred to a Royal Commission. We considered this suggestion together, however, and it was agreed that the discussions between the committee and myself should continue on the basis—which I for my part had always tried to emphasize in the previous discussions—that the Government was in no way committed to any particular method of organizing the new service, that every kind of proposal which might be put forward on the subject would be equally carefully reviewed, and that, as before, the discussions would commit neither side. The discussions have already been resumed in a very helpful spirit, and I feel sure that before long I shall be able to look at the question as a whole, in the light of all the views expressed to me by this and the other representative groups, and then to publish a statement of the general proposals which I feel should be put before the House and the country for full discussion before any legislation is embarked upon.

Sir E. GRAHAM-LITTLE also tabled a question to the Prime Minister asking him to take steps to appoint a Royal Commission on the future of medical practice. Sir Ernest said a resolution declaring that this was the only effective way to deal with the problem had been forwarded to the Ministry of Health by the medical Representative Committee and subsequently endorsed by a meeting on May 16 which had been attended by about 1,000 doctors. Replying for Mr. Churchill on May 26, Mr. ATTLEE said the question was based on a misapprehension. A suggestion for a Royal Commission had been made to Mr. Brown by the Representative Committee at a recent meeting, but after it had been considered by the Minister and the Committee together it was agreed that the discussions which had previously taken place should be continued.

Replying on May 27 to further questions, Mr. ERNEST BROWN said he had had very fruitful discussions in the preceding few days. He had received definite and constructive proposals from the voluntary hospitals in the previous week. Until the present discussions with all three bodies were concluded he would not consider issuing a White Paper.

Issue of Sulphapyridine to Troops

Sir JOCELYN LUCAS on May 18 asked the Secretary of State for War whether the drug " M & B," or any allied preparation, was supplied to American soldiers in Africa for use if wounded; if there were any figures of the percentage of lives saved thereby; and if British troops were so supplied. Sir JAMES GRIGG: I am informed that drugs of this type were issued to American soldiers in Africa. These drugs are not issued to individual soldiers in the British Army, but medical officers hold the necessary stocks of them. The figures asked for are not available. Replying to a suggestion by Sir Jocelyn Lucas that he should consult with the American authorities and find out what the results were, Sir James said he would certainly collect all the information he could from any source possible. He was, however, *prima facie*, indisposed to distribute these drugs broadcast among the troops without trial. Sir FRANCIS FREMANTLE: Is there not considerable danger in self-medication?

Diphtheria Immunization and Incidence

On May 18 Mr. ALFRED EDWARDS asked the Minister of Health whether children who took diphtheria after the first inoculation were put into the unimmunized class in the records sent to the Ministry by medical officers of health. Mr. BROWN replied that for the purpose of returns regarding immunization of children against diphtheria, local authorities were asked to show in how many of the cases of diphtheria notified in children under 15 the child was known to have completed the course of immunization not less than 12 weeks before the onset of the disease. Children not satisfying these conditions were considered as unimmunized. Returns received from local authorities showed that the number of notifications of diphtheria during 1942 in children under 15 in England and Wales was approximately 28,500, of which about 87% were non-immunized children.

Mr. ERNEST BROWN informed Mr. Viant on the same day that he was aware that only 45 cases of diphtheria were registered in the administrative county of Northampton in 1942. He could not state the percentage of children under and over 5 years of age immunized at the end of 1941. Percentage rates based on the child population of particular localities cannot be precisely calculated during wartime fluctuations of population. He added that the number of children immunized against diphtheria under local authority arrangements in England and Wales up to Dec. 31, 1941, was approximately 547,000 under 5, and 1,818,000 between the ages of 5 and 15. The corresponding figures at June 30, 1942, were 725,000 and 2,114,000; and at Dec. 31, 1942, 1,150,000 and 2,598,000.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. E. W. Riches will deliver the Hunterian Lecture on " Methods and Results of Treatment in Cases of Paralysis of the Bladder following Spinal Injury " on Thursday, June 10, at 4.30 p.m.

No. 19

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 15.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	62	6	29	4	1	178	11	55	4	8
Deaths		1	2				2	5		
Diphtheria	602	31	149	78	19	636	25	173	29	25
Deaths	12	1	3	1	—	11	—	2	4	—
Dysentery	98	22	41		—	85	5	67		—
Deaths	—	1		—	—	—	—		—	—
Encephalitis lethargica, acute	4	—	1	1	—	—	—	—	—	—
Deaths										
Erysipelas			39	10	3			42	7	3
Deaths		—					—	—		
Infective enteritis or diarrhoea under 2 years				30					45	
Deaths	41	9	5	11	7	50	8	8	6	4
Measles	8,032	518	569	6	50	5,611	656	562	128	290
Deaths	11	1	2	—	—	1	—	3	1	—
Ophthalmia neonatorum	48	2	27		1	77	2	19		2
Deaths										
Paratyphoid fever	4	—	2			14	—	2		
Deaths	1		—		—	1		—		—
Pneumonia, influenzal*	712	29	4	5	3	1,094	40	10	6	9
Deaths (from influenza)	22	3	6	—	—	21	1	1	2	—
Pneumonia, primary			191	32				308	18	
Deaths		—		11	7		—		3	6
Polio-encephalitis, acute	—	—				3	—			
Deaths		—					—			
Poliomyelitis, acute	8	2	1	5	1	11	1	1	1	—
Deaths		—					—			
Puerperal fever	—	2	11	—	—	—	1	9	1	1
Deaths										
Puerperal pyrexia	169	10	14		1	150	11	8		6
Deaths										
Relapsing fever	—	—			—	1	—			—
Deaths										
Scarlet fever	1,748	157	262	38	34	1,103	60	162	41	16
Deaths	1	—	—	—	—	2	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	4	1	2	10	2	9	2	1	7	1
Deaths			—	—	—			—	—	—
Typhus fever	—	—	—	—	—	—	—	—	3	—
Deaths			—	—	—			—	—	—
Whooping-cough	2,106	126	268	20	37	1,417	203	77	38	19
Deaths	11	2	1	2	—	8	—	1	3	—
Deaths (0–1 year)	341	45	53	34	22	367	49	71	28	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,502	698	628	222	132	4,527	592	635	197	137
Annual death rate (per 1,000 persons living)			14·2	14·6	†			14·3	13·2	†
Live births	6,638	774	952	450	344	6,263	704	964	375	280
Annual rate per 1,000 persons living			19·4	29·6	†			19·9	25·0	†
Stillbirths	239	21	37			228	25	37		
Rate per 1,000 total births (including stillborn)			37					37		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of infectious diseases fell, except scarlet fever, which rose by 290 cases. There were 2,058 fewer cases of measles, 119 of whooping-cough, 95 of dysentery, and 41 of diphtheria.

The rise in incidence of scarlet fever was general throughout the country, and especially in Yorks West Riding, Staffordshire, and Middlesex, where respectively 81, 40, and 31 more cases were recorded than in the previous week.

Diphtheria was prevalent mainly in the North. The three counties of Yorks West Riding, Lancashire, and Durham had 222 cases, or 37% of the total for the country, but only 75 cases, or 12%, were recorded in the South—i.e., London, the South-Eastern, South-Western, and South Midlands Divisions.

Notifications of measles were only 41% of the total six weeks ago. The greatest declines during the week were: Surrey 223, Warwickshire 147, Gloucestershire 109, Southamptonshire 103, Leicestershire 100, Essex 98. In Gloucestershire notifications have dropped from 1,156 during the week ending March 6 to 98 during the week reviewed.

The only sizeable variations in the trend of whooping-cough were rises in Lancashire 49 and Derbyshire 40, and a drop in Staffordshire 27.

There were 50% fewer cases of dysentery during the week. The only area to report a rise was London, where the cases went up from 11 to 22—10 in Bethnal Green and the remaining 12 in ten boroughs. The only other area with many cases was Lancashire, with 23.

In *Scotland* notifications of measles fell by 88 (with 84 fewer cases in Glasgow), and whooping-cough by 82 (50 fewer in Glasgow). An increase in the western area accounted for the 36 more cases of scarlet fever, the largest local rise being in Glasgow, 14.

The Week Ending May 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,740, whooping-cough 2,446, diphtheria 619, measles 8,377, acute pneumonia 672, cerebrospinal fever 68, dysentery 146, paratyphoid 4, typhoid 12.

Medical News

Medical officers of health are informed in a letter from the Ministry that the sound film on the prevention and treatment of scabies, which was described in these columns on April 10 (p. 451), will be available from June 1 for showing on 16 mm. and 35 mm. sound projectors. Medical officers who can borrow a projector can obtain a copy of the film from the Central Film Library, Imperial Institute, London, S.W.7. In other cases the help of the Regional Film Officer of the Ministry of Information should be sought in providing projector, operator, screen, etc. A list of regional officers is attached to the Ministry's letter. While the film is not intended for public cinema programmes it is hoped that medical officers will see that it is shown as widely as possible to invited audiences, especially to doctors, nurses, and other health workers likely to come into contact with the disease.

On the afternoon of Thursday, June 10, Dr. S. A. Henry, medical inspector of factories, Ministry of Labour and National Service, will give two lectures on "The Health of the Factory Worker in War-time." The lectures will be given at 2.30 and 3.45 respectively in the School of Medicine, Leeds, and medical practitioners interested are cordially invited to attend.

An interesting series of demonstrations of the work carried out in the gastric and urological units of St. James Hospital, Balham, was arranged by the London County Council for the benefit of medical officers of the Royal Canadian Army Medical Corps and the United States Army Medical Corps on April 29. Senior surgeons of both the Canadian and American Forces were present, and among the visitors was Col. J. C. Kimbrough, the Director of Professional Services to the American Forces. During the morning demonstrations were given by Mr. Norman Tanner, surgeon-specialist, and Mr. H. K. Vernon, senior resident surgeon in gastroscopy, on nephro-ureterectomy for ectopic vaginal ureter and cystoscopy and fulguration of villous growth. The afternoon was occupied by demonstrations of partial gastrectomy, slide repair of hernia, injection of oesophageal varices by Mr. Tanner, and cystoscopy, suprapubic lithotomy, and modified Harris's prostatectomy, nephrectomy, and operation for haematocele by Mr. Vernon. Patients and specimens were also seen in one of the wards of the hospital. The visitors expressed their appreciation of the opportunity afforded them of seeing some of the recent developments in gastric surgery in this country and their indebtedness to the L.C.C. for arranging this visit, which is one of a series provided in the Council's medical services for the benefit of Allied and Dominion medical officers.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Aspirin and Gastric Haemorrhage

Q.—*Is there any foundation in fact for the statement made that aspirin tends to promote gastric haemorrhage?*

A.—The evidence that aspirin can produce gastric erosions and alimentary haemorrhage in certain individuals has been convincingly presented by Douthwaite (*British Medical Journal*, 1938, **1**, 1143), Douthwaite and Lintott (*Lancet*, 1938, **2**, 1222), and Hurst and Lintott (*Guy's Hosp. Rep.*, 1939, **89**, 173). Reference to the original papers will show that the findings were clinched by gastroscopic observations, and they are generally accepted by gastro-enterologists.

On Hypo- and Hyper-chlorhydria

Q.—*(1) Has vitamin A any effect on hypochlorhydria? (2) Is there any substance that could increase the gastric hydrochloric acid in cases of hypochlorhydria? (3) Is there any truth whatsoever in the statement that smoking increases gastric HCl in cases of deficiency?*

A.—1. Vitamin A has been said to improve both the symptoms and the secretion of hydrochloric acid when administered for two or three weeks in a dosage of 16,000 international units t.d.s. to patients with hypochlorhydria. Curiously enough, vitamin A in high dosage is also reputed to relieve gastric ulcers. None of this work is very convincing.

2. A subcutaneous injection of 0.5 to 1.0 mg. of histamine acid phosphate will increase the secretion of free hydrochloric acid in hypochlorhydria, but this is a diagnostic and not a therapeutic measure. It is better to treat the presumptive cause of the hypochlorhydria—iron in hypochromic anaemia; thyroidectomy in hyperthyroidism; dental treatment and gastric lavage in oral sepsis, etc. In many cases of hypochlorhydria there is a strong constitutional factor, and there is no more prospect of getting the acid secretion back than of growing hair on bald heads. In such cases one can if necessary give dilute hydrochloric acid *B.P.* 20–60 minims in water at meal-times. But why this bother about the hydrochloric acid? The organism usually gets on quite well without it, and the symptoms of gastritis can rarely be correlated with lack of acid.

3. Excessive smoking causes hyperchlorhydria in normal subjects. Smoking might therefore be expected to increase the secretion of HCl in hypochlorhydria, but only in a dosage likely to cause also loss of appetite and motor disturbances in the gastro-intestinal tract.

Gentian Violet for Threadworms

Q.—*Is the gentian violet oral treatment for threadworms without risk, and if so what are the correct doses for children and adults? Should this treatment be combined with washouts of any kind? Is a preliminary purge necessary?*

A.—The gentian violet treatment of threadworms appears to be without any risk except that it sometimes causes vomiting, presumably because the capsules in which the drug is given have dissolved in the stomach. On the whole I think it best to give the drug after meals, when any irritant effect is minimized. The correct dose is based on the formula: gr. 1/6 for each year of apparent age per day for five days; then five days' rest; and then repeat for five days. Having worked out the dose, divide it into three lots and order it after meals. The drug is put up in gelatin capsules. A convenient method for surgery use is to have capsules containing gr. 1/6 available and work out the quantity as indicated. For adults the maximum dose has not been satisfactorily determined. Probably gr. 2 a day would be suitable. No purge is required and no washouts, but it is well to order some white precipitate ointment for application to the anus at night, and the nails should be carefully cut and cleaned. It is also a good plan to try to make sure that there is no reservoir of infection present in any other member of the household.

Hexobarbitone as Hypnotic

Q.—*Clinically hexobarbitone appears a useful drug in getting people to sleep. Is it more often followed by toxic effects than, say, soluble barbitone? Is the incidence of agranulocytosis high?*

A.—Hexobarbitone given by mouth is an excellent hypnotic when there is no pain. Its action is rapid and its destruction in the body occurs quickly. This makes it safe, and toxic effects are rare when it is administered by the oral route. Agranulocytosis has possibly been produced by various barbiturates in the past, though even this is doubtful. It is less likely to arise from hexobarbitone than the more persistent members of the group. In any case the risk is remote.

Recurrent Haemarthrosis

Q.—*A woman aged 53 suffers from attacks of haemarthrosis of the right knee which occur while she is walking. She has had five attacks in the last seven months, and is quite well in between. She had one attack in the left knee in 1940. I remove about 1½ oz. of blood each time, apply elastoplast, and the joint clears up in a few weeks without the necessity for a second tap. There is nothing to be found wrong with her knee beyond some x-ray evidence of osteo-arthritis. She has had varicose veins in both legs below the knee, which have been treated very successfully by injection, but it is clear now that a desirable refinement would be a Trendelenburg operation in each leg, as veins are appearing in the thighs reaching up towards the saphenous opening. Is it possible that her trouble is due to varicosity in the knee-joint? Can any other treatment be suggested? Apart from her knee she is an active and energetic worker; her menopause was 15 years ago.*

A.—Except in very rare instances, varicose dilatation is limited to superficial and unsupported veins; it is therefore very unlikely that this is the cause of the bleeding into the joint. An angioma or other tumour of the synovial membrane is a more possible cause; but rather more probable is a blood dyscrasia. The fact that there has been one attack in the opposite joint supports this view. The coagulation and bleeding times should be investigated, and attention paid to the vitamin content, especially C and P, of the food. If necessary the urinary excretion of vitamin C can be estimated and the result accepted as evidence for or against a deficiency.

Immunity to Virus Infection

Q.—*Is the immunity to a virus fundamentally the same as the immunity to a bacterium?*

A.—Both types of immunity are similar in that they both depend essentially on specific antibodies. Those differences between the two that do exist are dependent on the different modes of life of bacteria and viruses. Parasitic and pathogenic bacteria live in the body fluids of their hosts; viruses are obligate intracellular parasites. Living cells are not permeable to antibodies. This means that, whereas bacteria are readily accessible to the antibodies in the body humours, viruses are protected from them so long as they are intracellularly placed. Only when the infected cells die and break down, discharging their virus content, and the viruses are in transit to new cells, are they exposed to the action of antibodies. We do not yet know how virus antibodies act *in vivo*. Bacterial antibodies so alter the bacteria as to render them an easy prey for the phagocytes; the antibodies and the phagocytes act in conjunction in combating infection. But there is no evidence that the phagocytes play any part in virus immunity. All we know is that, when a virus is sensitized by the appropriate antibody, either it is unable to get inside cells and so cannot multiply, or, if it does get inside, the antibody has so altered it as to render it incapable of multiplication.

LETTERS, NOTES, ETC.

Treatment of Malignant Tertian Malaria

Dr. D. B. BRADSHAW (deputy medical officer of health, South Shields) writes: May I thank Dr. Elliot Murray (May 15, p. 613) for his friendly comment on the case of malignant tertian malaria recorded by Dr. Anderson and myself. Let me assure Dr. Murray that we have no intention of advocating the use of quinine as a routine in malignant malaria. We used it in this case at first because we had then no other antimalarial at hand; later we were unwilling to change to some more orthodox scheme of treatment, such as that recommended by Dr. Murray, because the patient's clinical response had been so favourable.

Gastro-duodenal Surgery in the Aged

Dr. G. WHITTINGTON (Reigate) writes: In the *Journal* of May 8 (p. 563) appears an article on gastro-duodenal surgery in the aged by Mr. N. C. Tanner, with an account of a successful operation for perforated duodenal ulcer in an old lady of 79. It is stated that, "this being the second oldest case of perforated ulcer on record to recover," I wish to record the case of a lady of 81 who was operated upon by me for a perforated gastric ulcer near the cardiac end, and who made a good recovery. The operation was completed just 2 hours after the occurrence of the perforation, and she is alive to-day at age 86.